(NASA-CR-120583) TRACK-TRAIN DYNAMIC ANALYSIS AND TEST PROGRAM, TRUCK STATIC TEST (Martin Marietta Corp.) N75-16850

Unclas
G3/37 09653

TR-131S-74

TEST REPORT

TRACK-TRAIN

DYNAMIC ANALYSIS

AND TEST PROGRAM

TRUCK STATIC TEST

November 1974

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1.0 SUMMARY

A series of tests were conducted to define the characteristics of an ASF 11 Ride Truck Assembly including joint slop, friction and stiffness. Loading to the truck assembly included vertical load to simulate the car/coal loading combined with lateral or moment loading that resulted in desired truck deflections for the various phases of testing. All seven test conditions were successfully completed with load and deflection data being collected. No attempt is made in this report to reduce the applicable data other than to provide computer plots. The Dynamics and Loads Analysis Section will utilize the test data for computer model correlation.

2.0 TEST SPECIMEN

The test specimen was an ASF 11 Ride Truck Assembly supplied to Martin Marietta Corporation by the Louisville and Nashville Railroad. The ride truck assembly was equipped with Brenco 6X11 roller bearing assemblies.

The ride truck assembly appeared to be fairly new as very little wear was present on the bolster to body center plate contact area or on the wheel to rail contact area. Photo 1 shows the ride truck assembly as received. Photo 2 is a close up of the bolster cup area showing rust and scale present in the as received condition. For testing the area was buffed and cleaned to the condition shown in photo 3. Also shown in photo 3 are wear marks in the bolster cup rim from body center plate rivet contact.

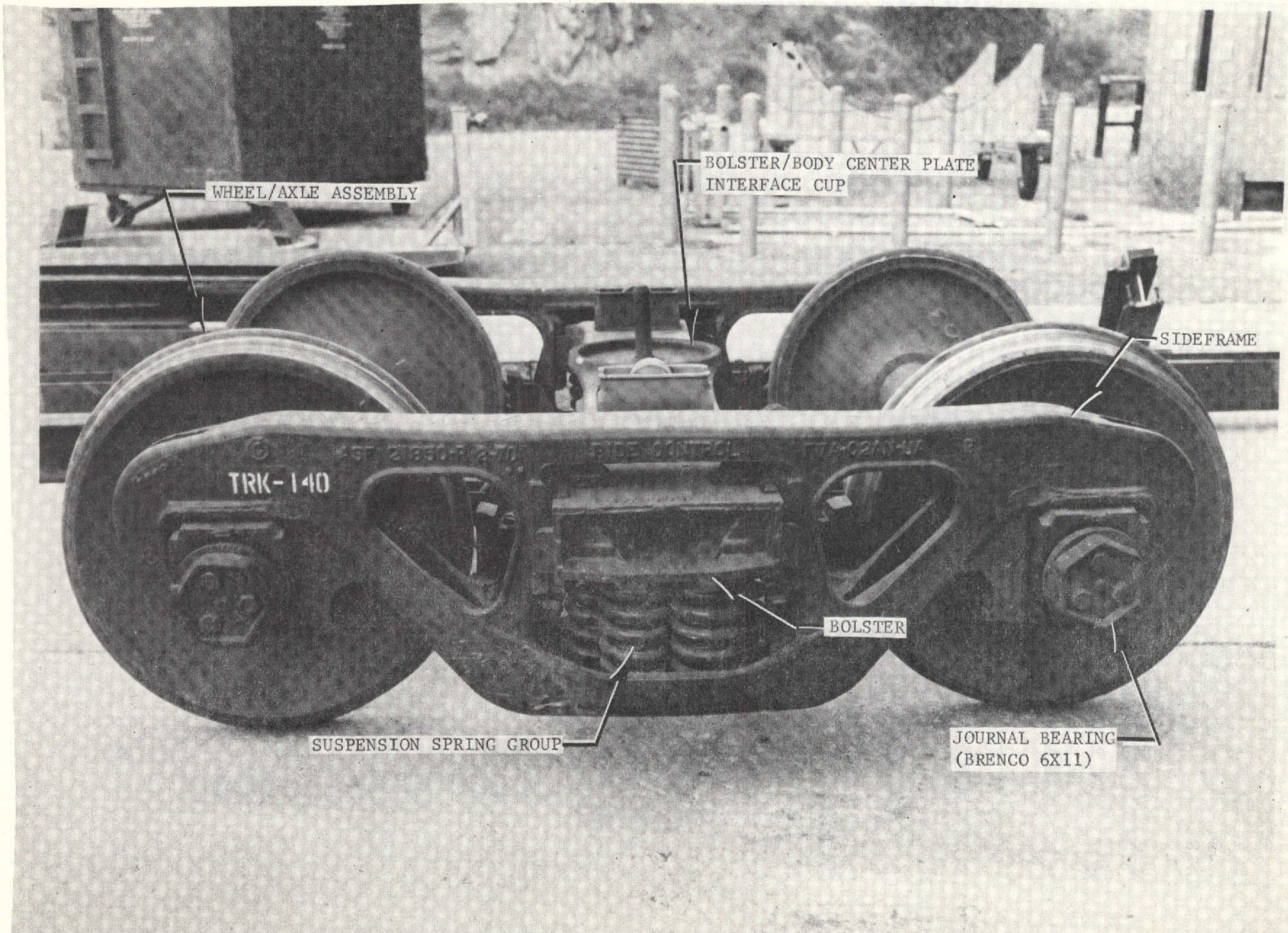

PHOTO 1: ASF 11 RIDE CONTROL TRUCK ASSEMBLY

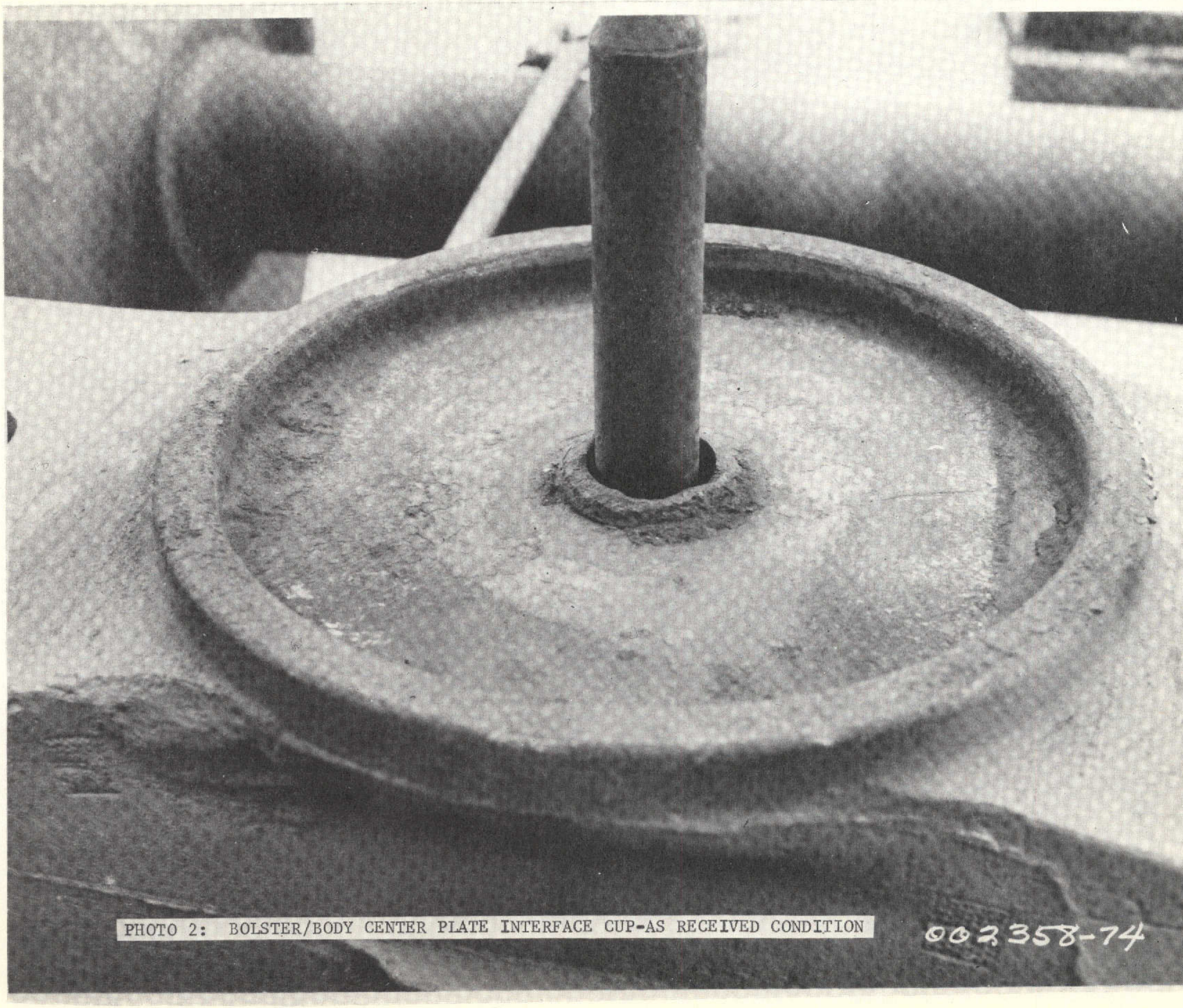

PHOTO 2: BOLSTER/BODY CENTER PLATE INTERFACE CUP-AS RECEIVED CONDITION

TR-131S-74

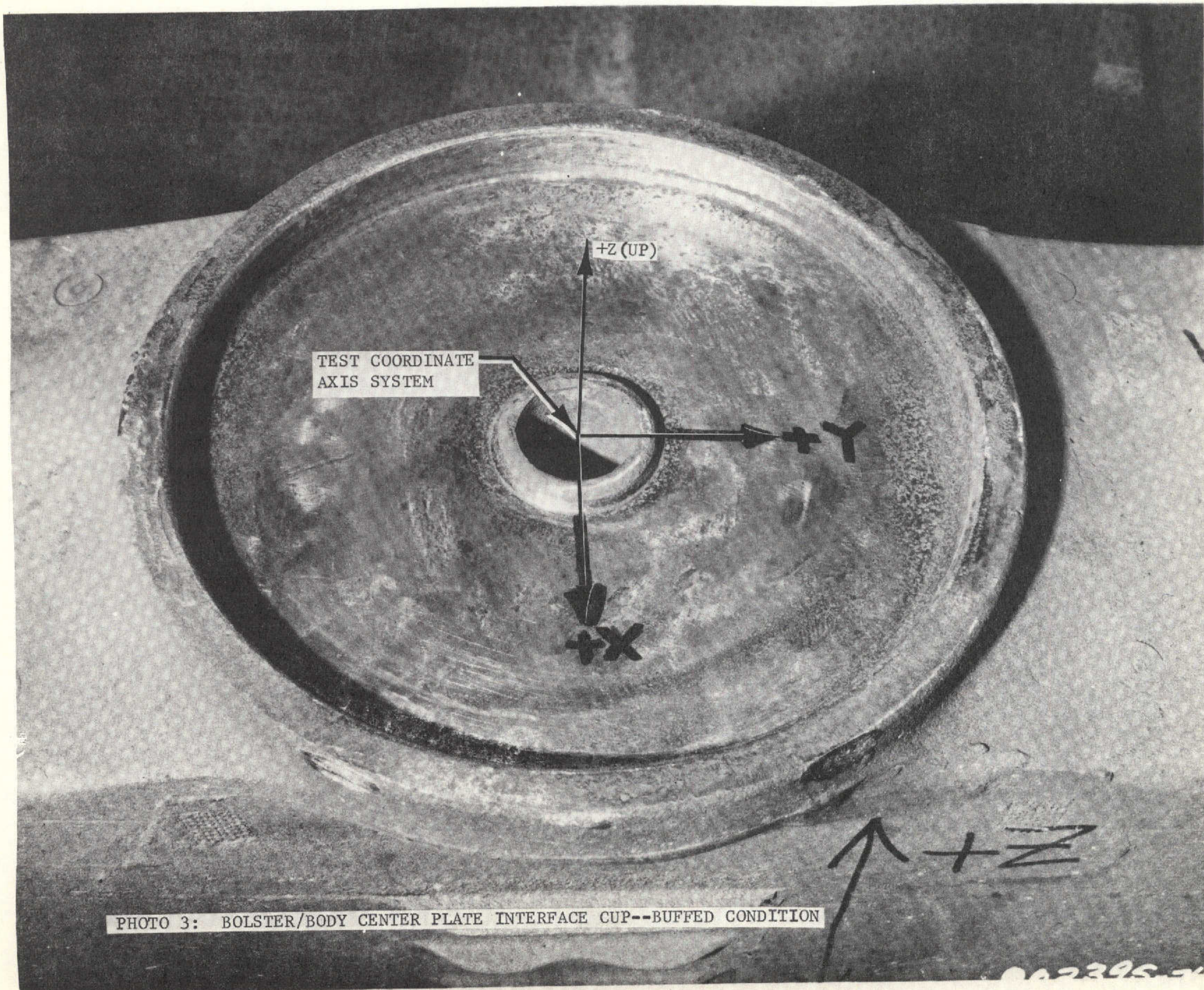

PHOTO 3: BOLSTER/BODY CENTER PLATE INTERFACE CUP--BUFFED CONDITION

3.0 TEST SETUP AND LOADS

Two major testing fixtures were required to complete the testing of the ride truck assembly. The fabrication of these test fixtures and setup of the test phases is documented on MMC drawing LAB1007045 that is included as Appendix B of this report. Phases 1 through 5 were conducted with the ride truck assembly in the normal operating position. Phases 6 and 7 were conducted with the ride truck assembly in an inverted position.

Since it was desirable that the lateral and moment loading be cyclic with a controllable amplitude and frequency, a servo-controlled loading system was incorporated. The system consisted of a 5000 psi hydraulic supply pump, two 50,000 pound hydraulic actuators, two 20,000 pound load cells, two 15 gallon/minute Moog servo valves, two Bristol recorders, a function generator and control panel.

A sine wave form loading was controlled by setting the desired load (amplitude) and frequency with the function generator and control panel (photo 4). The load cells were used for feedback in the load lines so that the Moog servo valves (photo 5) could control the desired loading. Two Bristol strip recorders were used for displaying and recording the cyclic loading.

The vertical load was applied in three increments for all phases of testing. These increments were 20,000 pounds (light car simulation), 50,000 pounds, and 100,000 pounds (full car simulation). The cyclic loading had a maximum amplitude of $\pm$10,000 pounds with frequencies of 0.25 cycles/second and 0.50 cycles/second. The sequential

PHOTO 4: SERVO SYSTEM CONTROL STATION

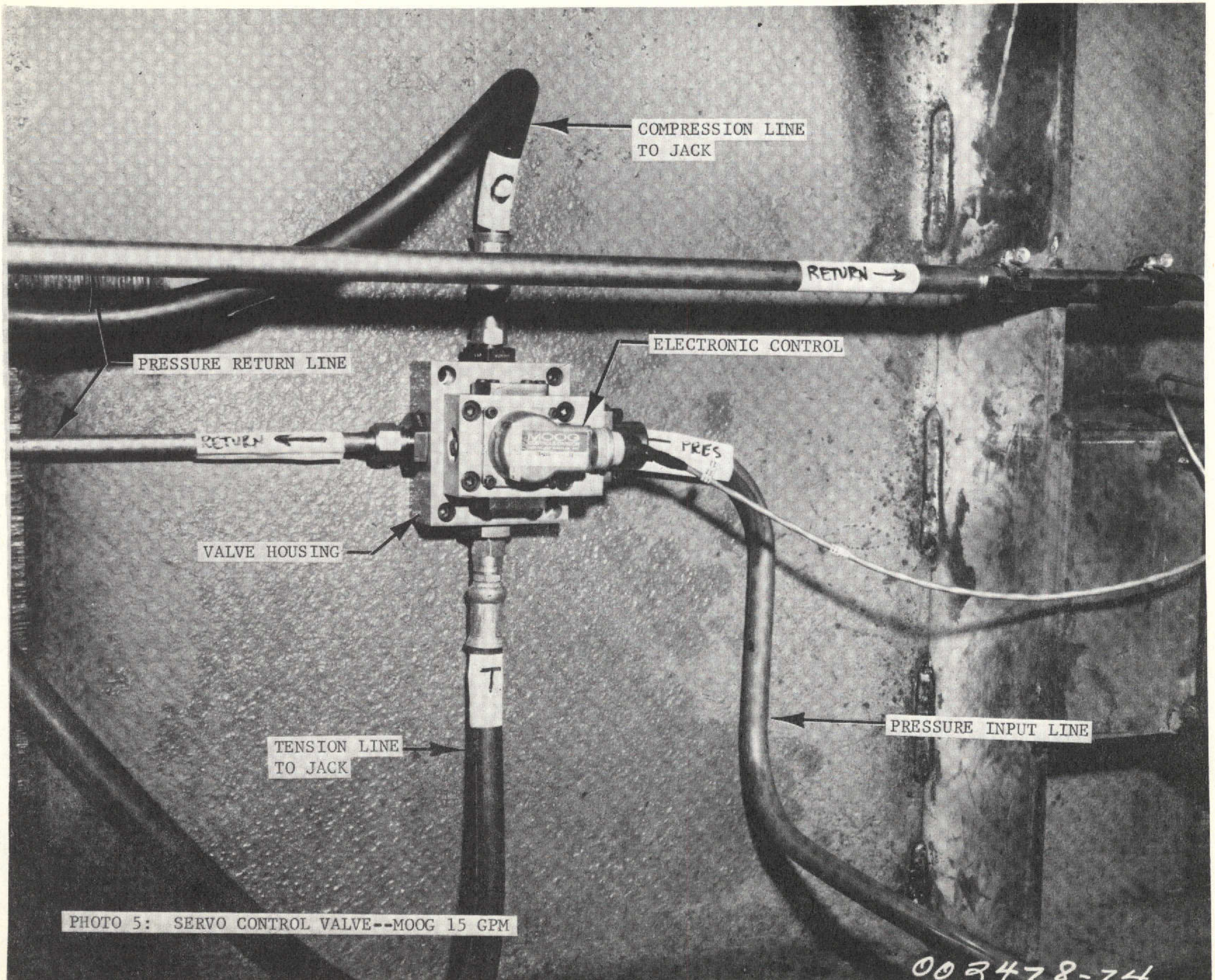

PHOTO 5: SERVO CONTROL VALVE--MOOG 15 GPM

operations section of the Test Procedure, Appendix A of this report, documents the specific loading combinations during the different phases of testing.

For Phases 1 through 5, the hopper car loading was simulated using one vertical load line loading the bolster through a body center plate welded to a load fitting. Photo 6 shows the body center plate as it was welded into the load fitting. The rust and scale were buffed from the plate to provide a clean interface surface. Lateral and moment loading was introduced into the bolster utilizing a cross beam welded to the body center plate load lug as well as two fittings welded to the opposite ends of the bolster. Photo 7 shows a close-up of the bolster end fittings while photo 8 shows the lateral load fittings as well as the ride truck assembly in place on the test fixture used for Phases 1 through 5. Photo 9 shows the lube pads that were used in the testing of Phases 1 through 5. Photo 10 shows the bolster load lug fitting under the bolster with the vertical preload load line universal and load cell in place. In photo 11, the wheel chocks used to prevent rolling of the wheels in Phases 1 through 5 are shown welded in place. These chocks were used on all four wheels for the testing.

Phase 1 testing was accomplished using only the bolster vertical preload loading. No lateral or moment loading was imposed on the ride truck assembly. This test was conducted to measure the bolster suspension spring stiffness and bolster damper characteristics. Photos 8 and 11 present the setup for Phase 1.

Phase 2 testing combines both bolster vertical loading and cyclic lateral ($\pm$Y axis) loading. Photo 12 presents the servo control

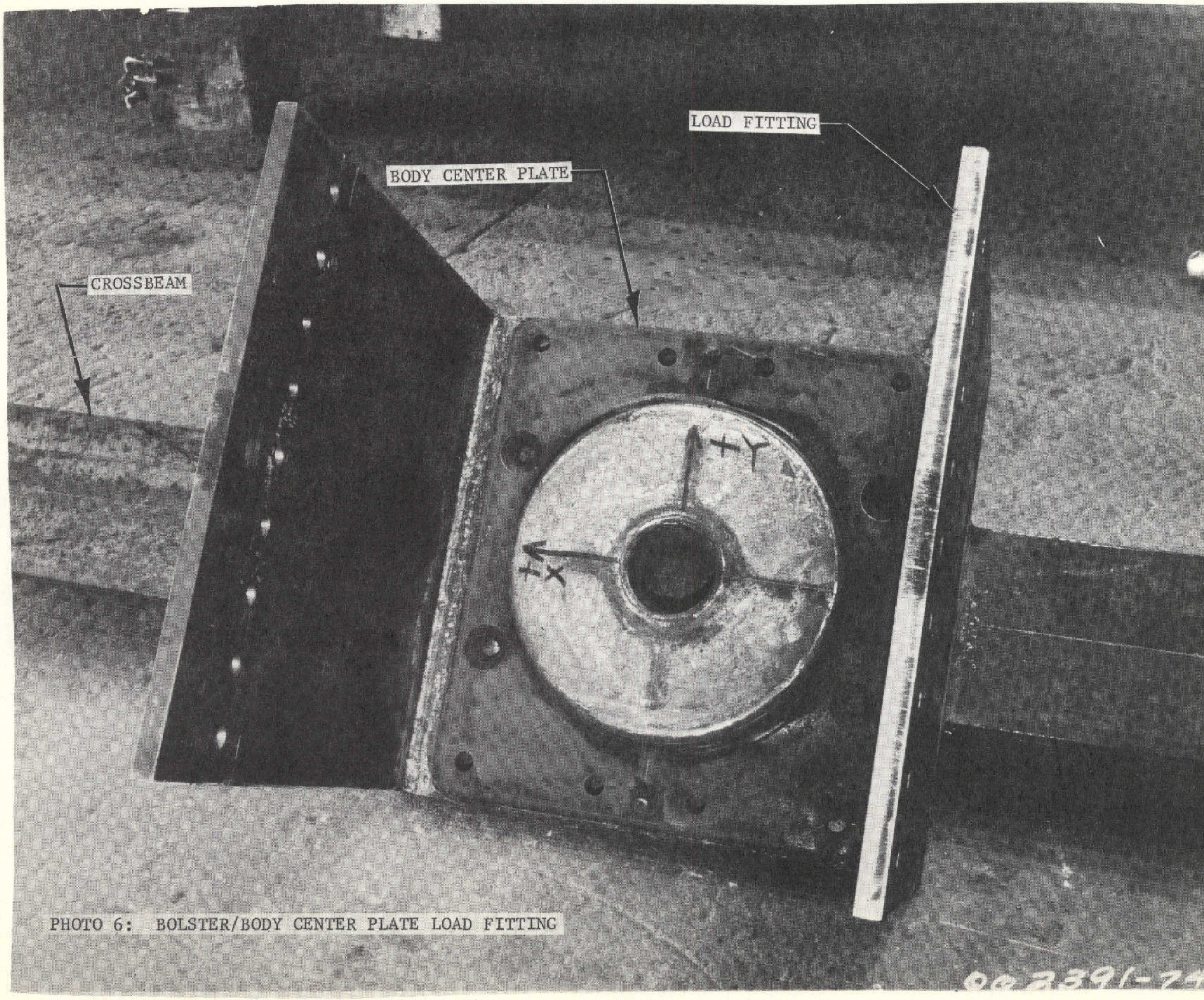

PHOTO 6: BOLSTER/BODY CENTER PLATE LOAD FITTING

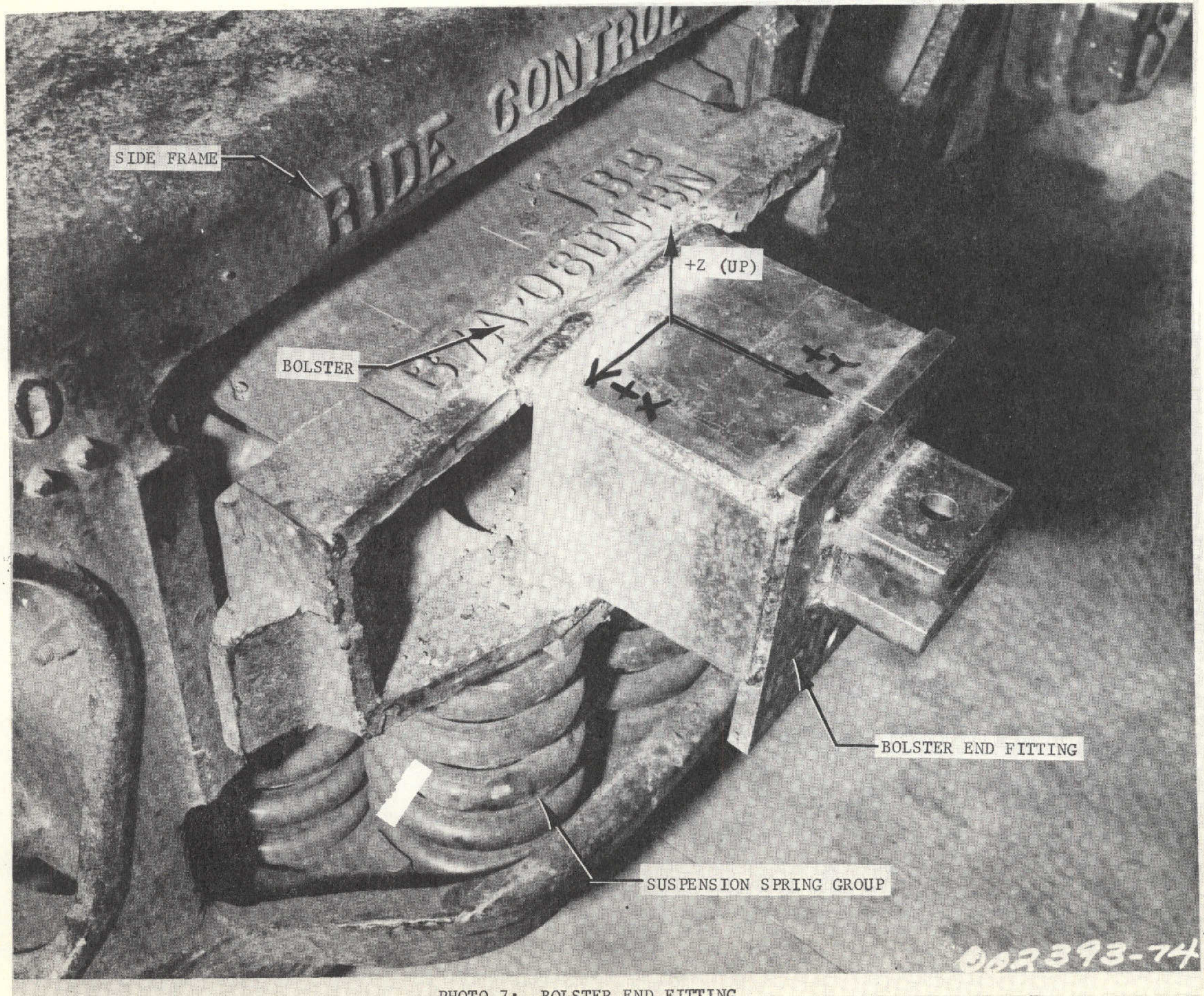

PHOTO 7: BOLSTER END FITTING

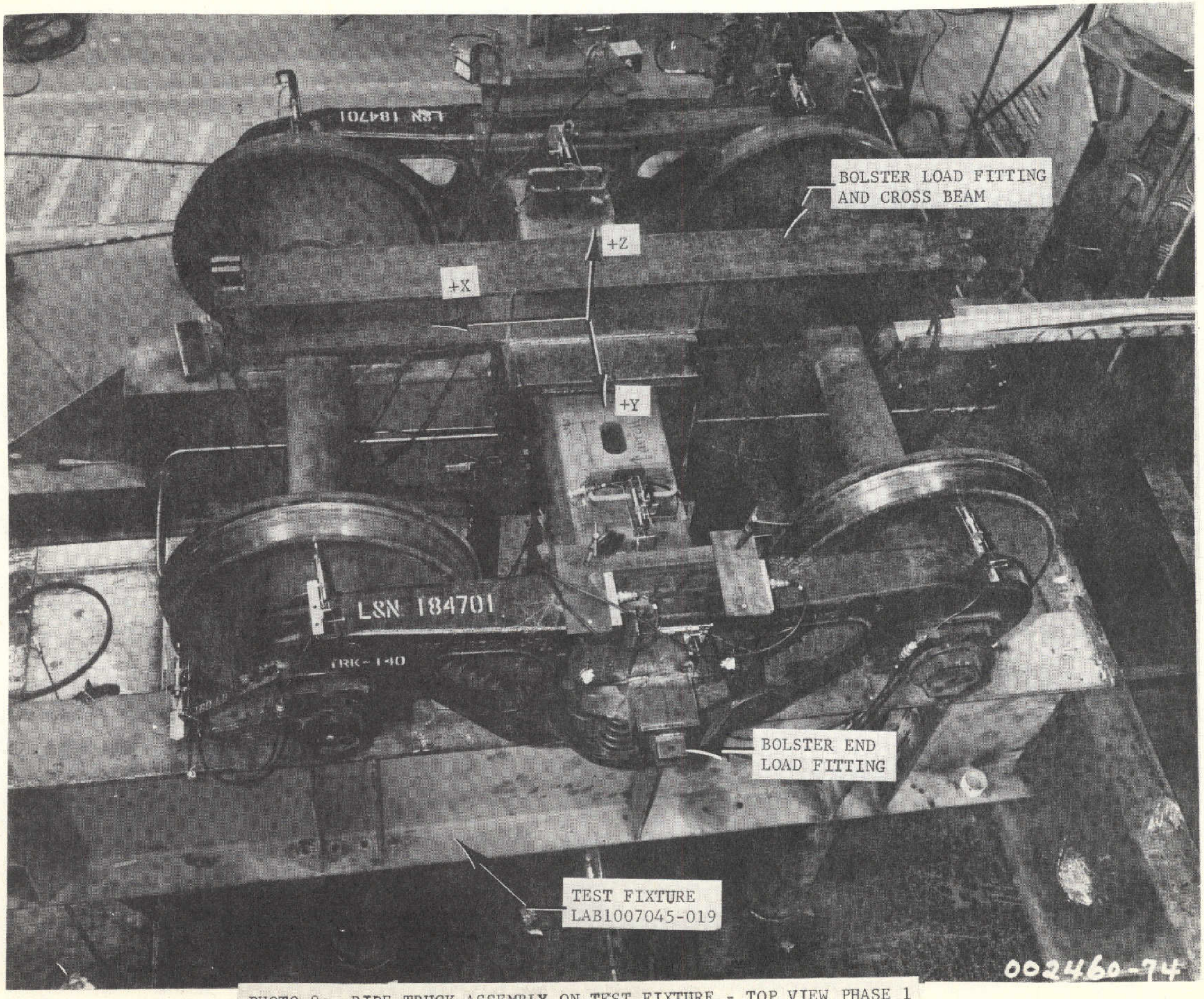

PHOTO 8: RIDE TRUCK ASSEMBLY ON TEST FIXTURE - TOP VIEW PHASE 1

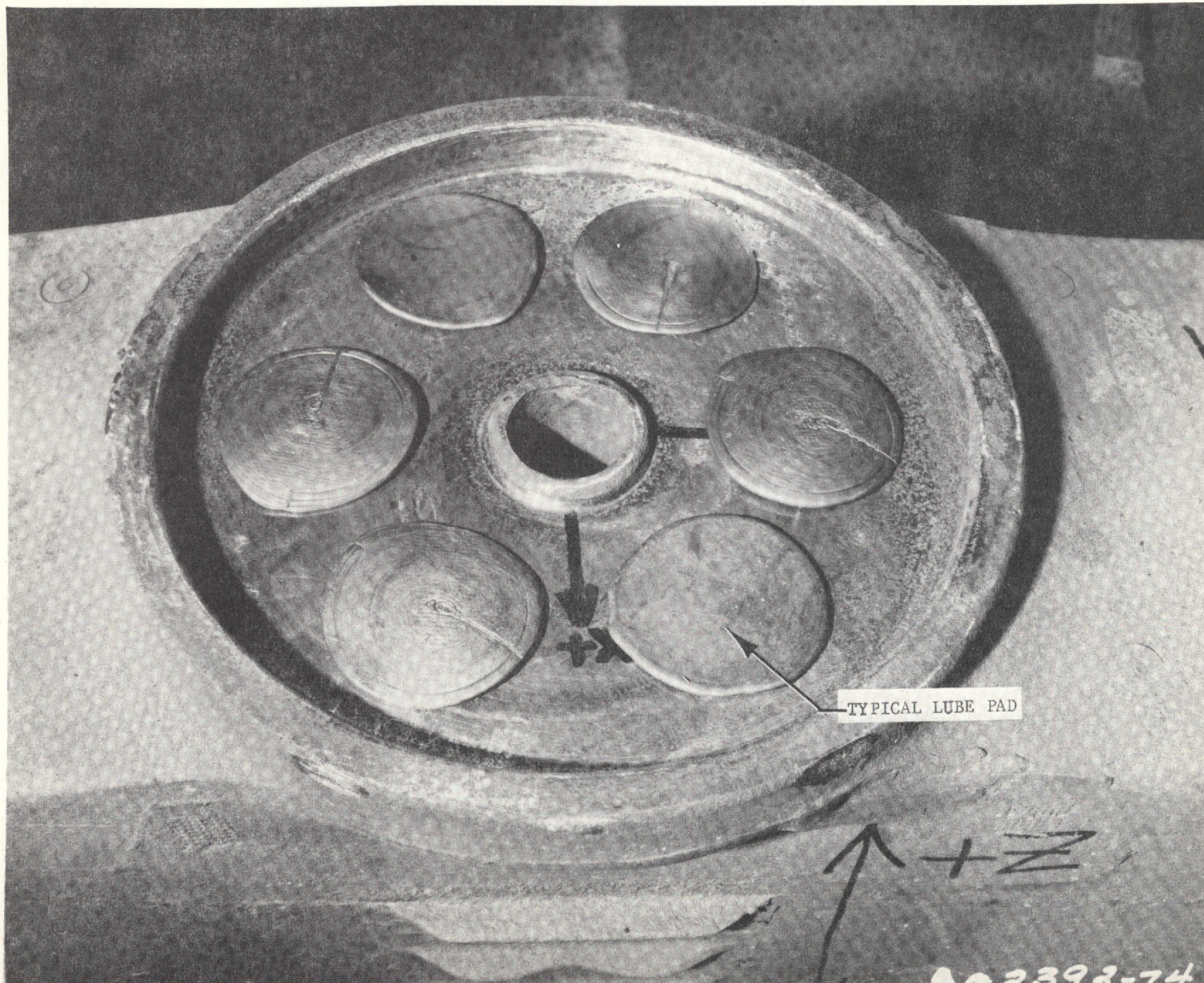

PHOTO 9: BOLSTER/BODY CENTER PLATE INTERFACE CUP WITH LUBE PADS

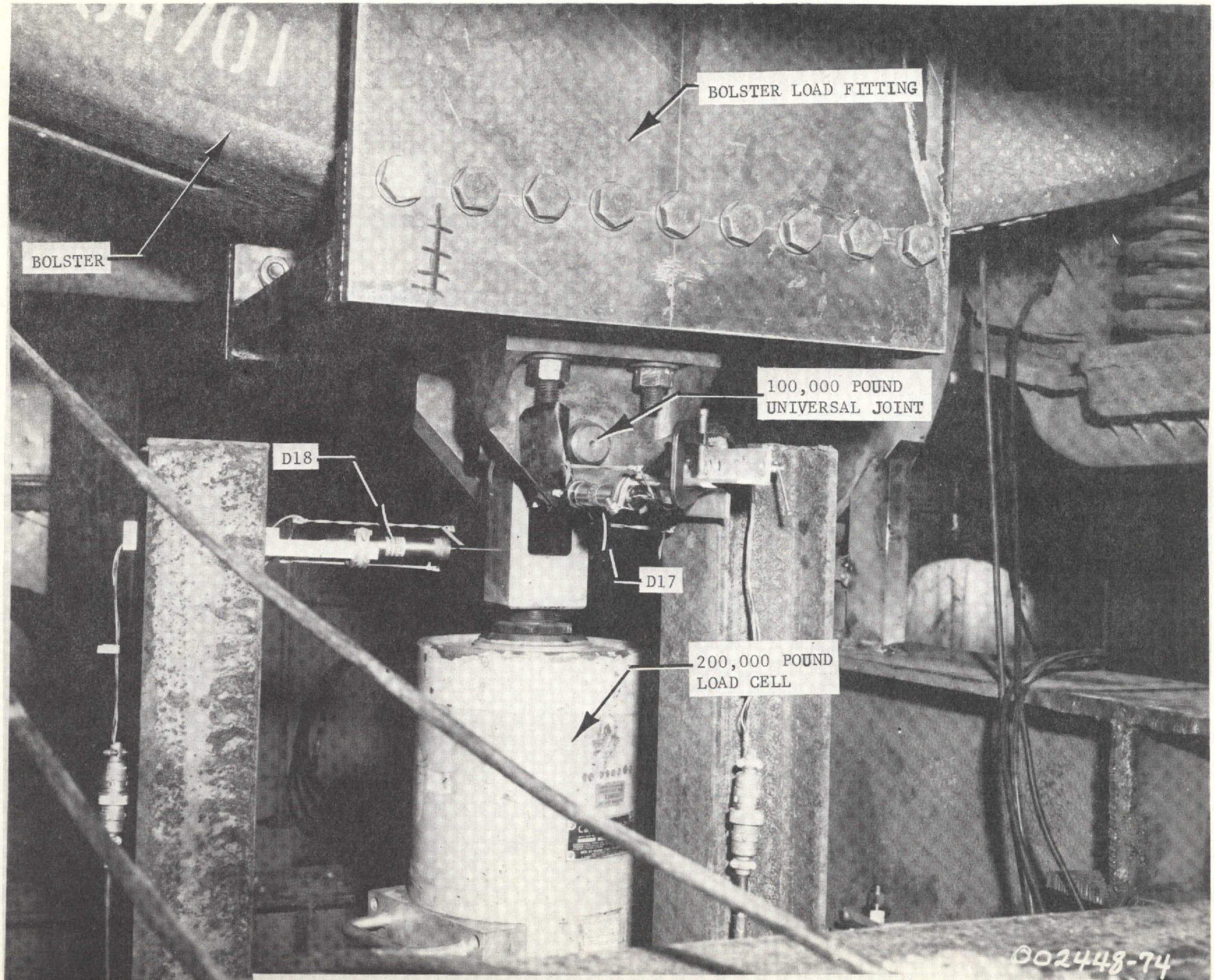

PHOTO 10: BOLSTER LOAD FITTING AND VERTICAL LOAD LINE ATTACHMENT

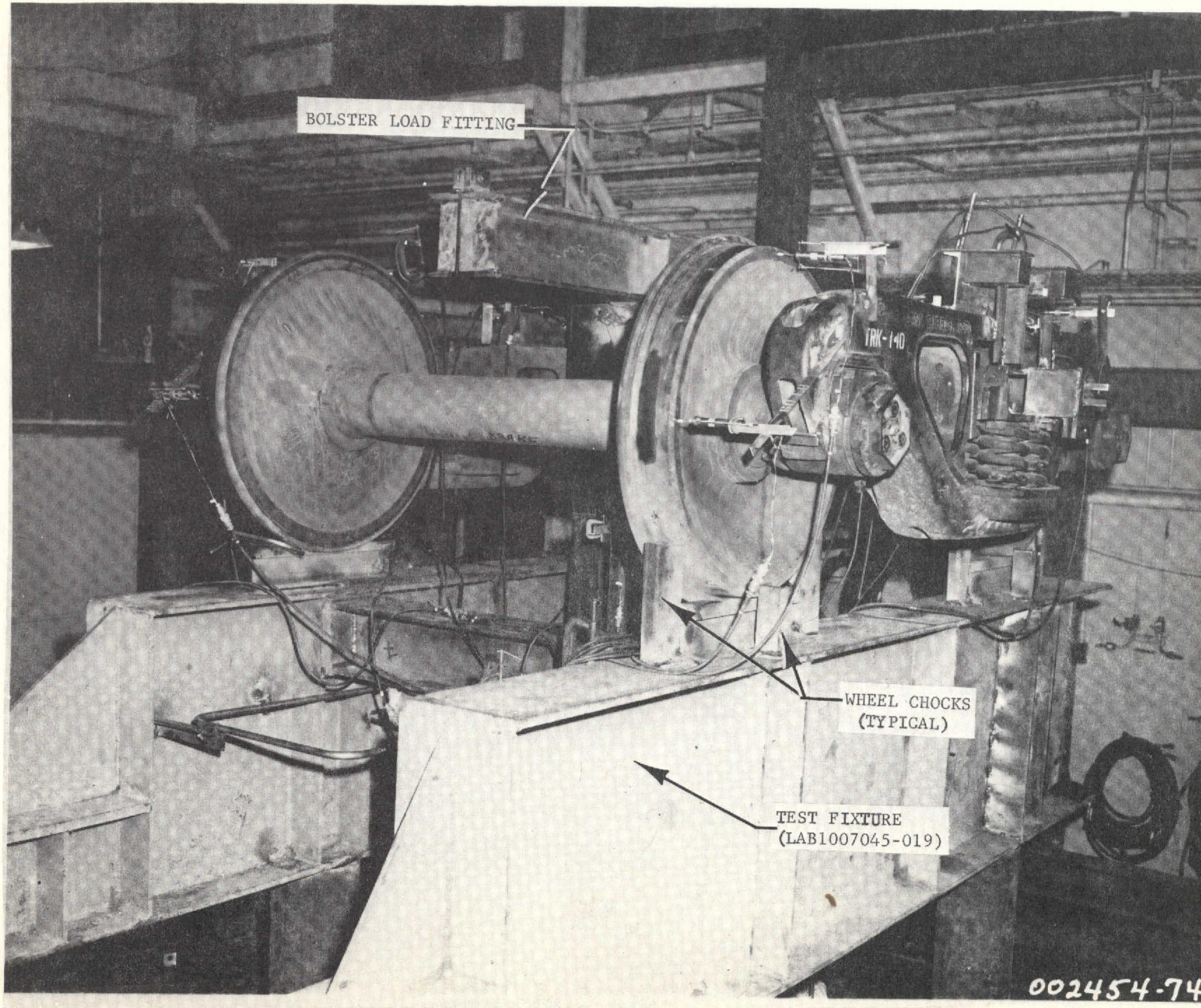

PHOTO 11: RIDE TRUCK ASSEMBLY ON TEST FIXTURE - END VIEW PHASE 1

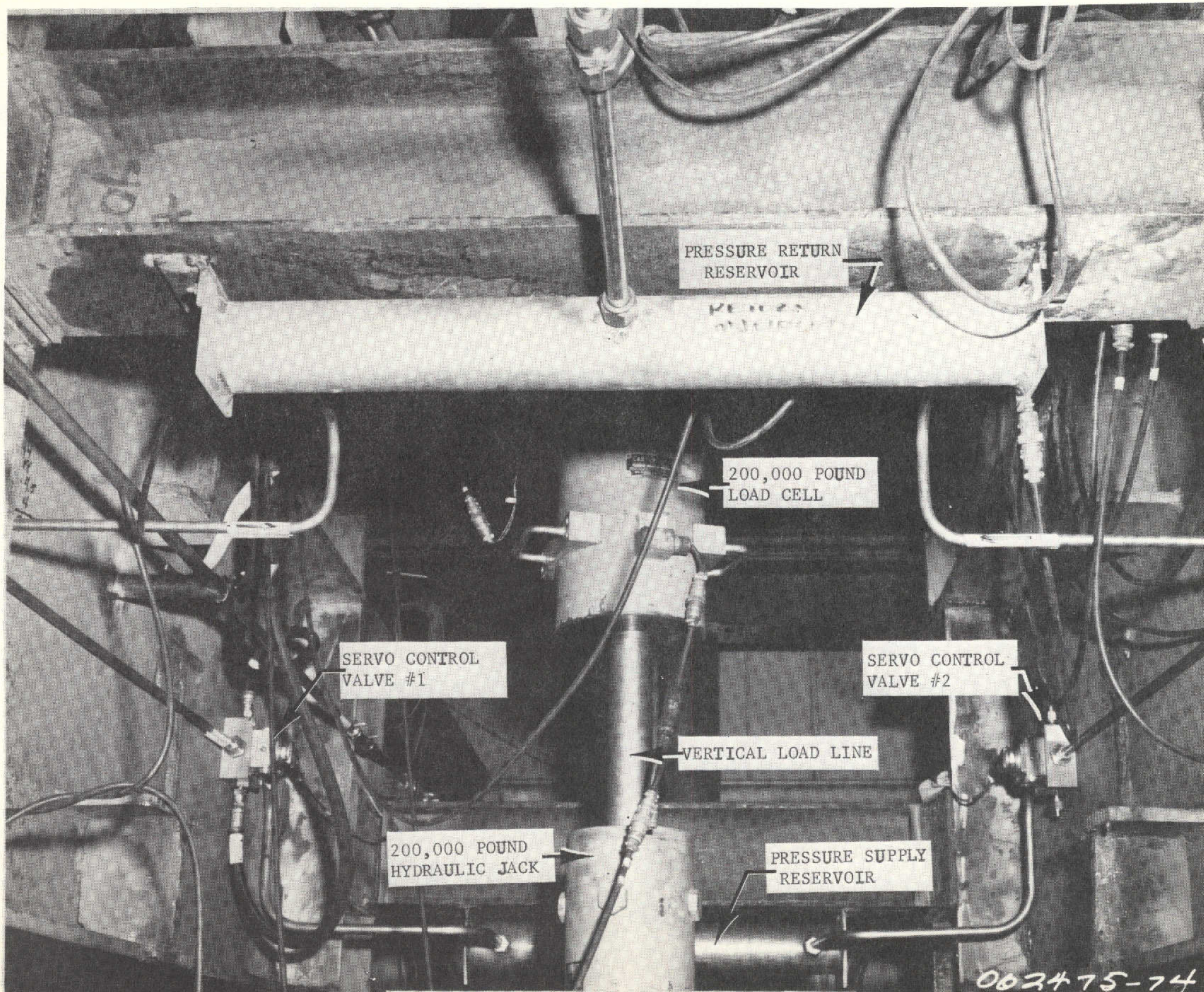

PHOTO 12: SERVO CONTROL SYSTEM INSTALLATION

system and vertical load line used in Phases 2 through 5. Phase 2 conducted to measure the lateral bolster to side frame slop and lateral side frame to axle slop and friction. Photo 13 presents the setup.

Phase 3 combines bolster vertical loading with cyclic longitudinal (±X axis) loading. This test was conducted to measure the longitudinal bolster to sideframe slop and sideframe to axle friction. Wood blocks were required to prevent rotation of the bolster loading lug. Photo 14 presents the setup.

Phase 4 combines bolster vertical loading with cyclic moment (±My) loading. Wood blocks were required to prevent rotation of the bolster loading lug. This test was conducted to measure the rotational characteristics of the suspension/damper. Photo 15 presents the setup.

Phase 5 combines bolster vertical loading with cyclic moment (±Mx) loading. The purpose of this test was to measure the suspension spring/damper characteristics. Photo 16 presents the setup.

For Phases 6 and 7, the ride truck assembly is inverted and supported on the bolster/body center plate interface by a column. The vertical loading is introduced into the ride truck assembly using two hydraulic load lines with one at the center of each wheel/axle assembly. The bolster is fixed from vertical motion by the support column so as vertical loading is applied, the sideframes and wheel/axle assemblies move downward to compress the suspension springs. Photo 17 shows the ride truck assembly in the inverted position on the support column. Also shown is the servo loading system used only for Phase 6 testing.

Phase 6 testing combines bolster vertical loading with racking cyclic loading. The purpose of this test is to measure the

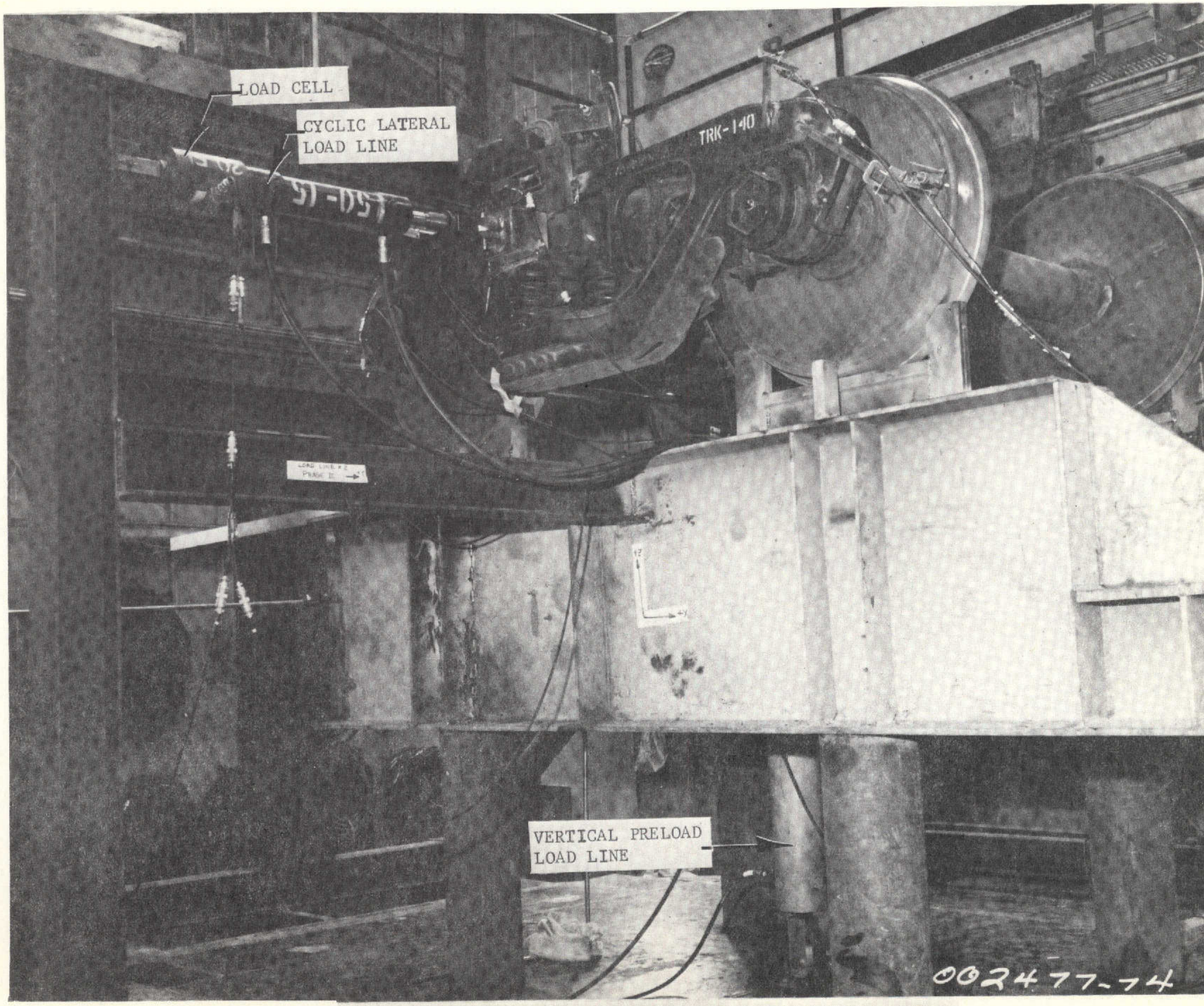

PHOTO 13: PHASE 2 TEST SETUP - + Y LATERAL CYCLIC LOADING

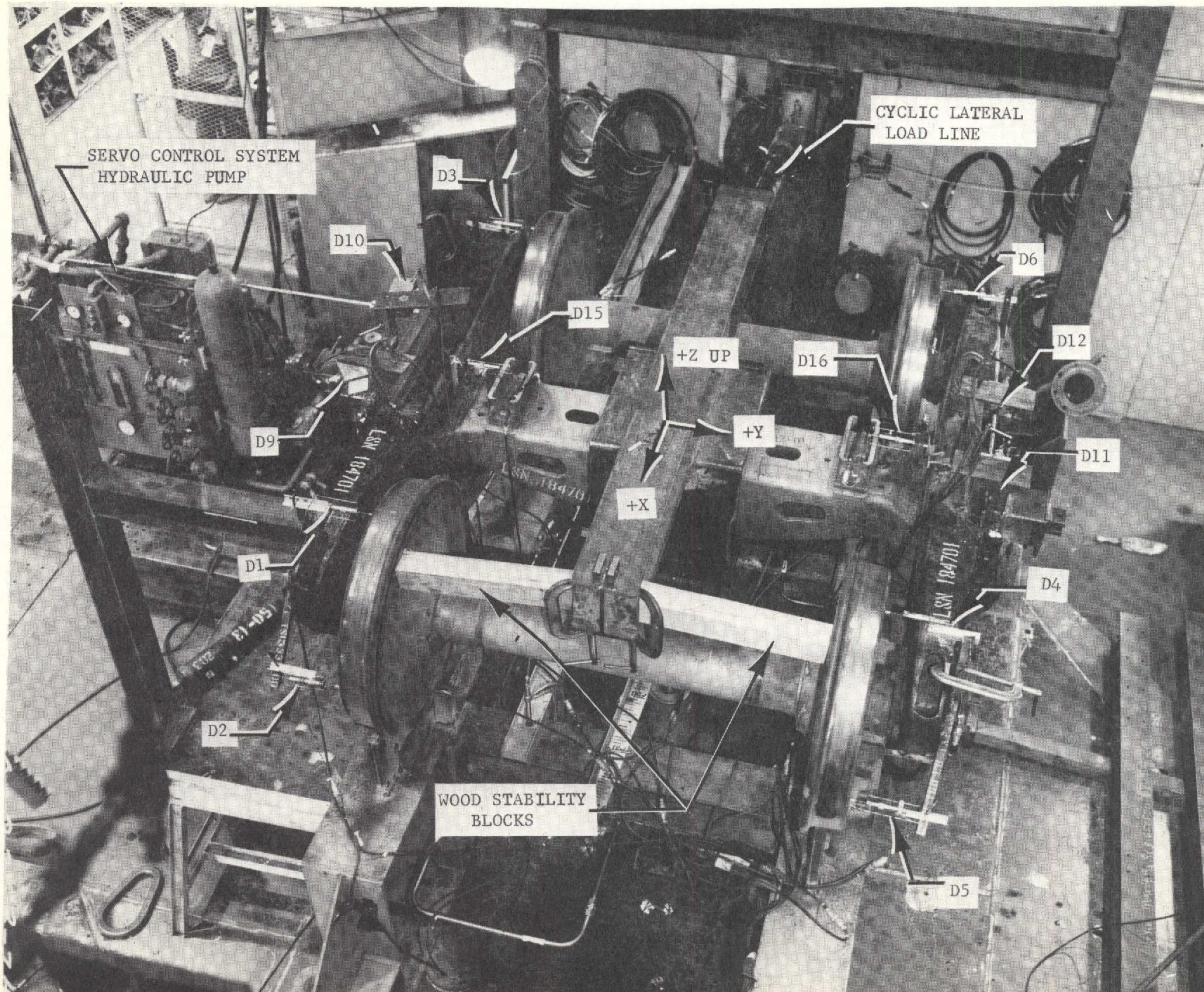

PHOTO 14: PHASE 3 TEST SETUP - ± X LATERAL CYCLIC LOADING

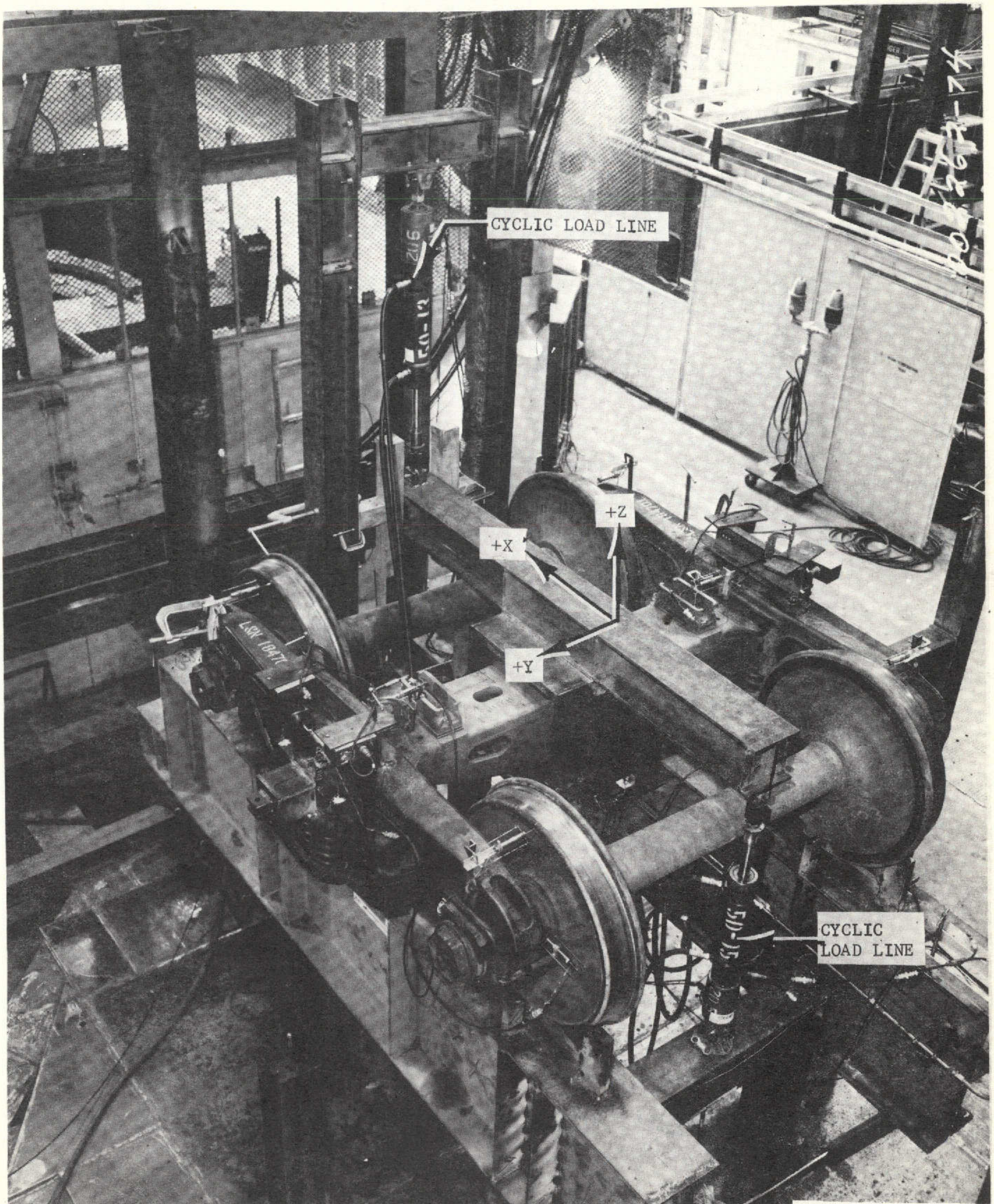

PHOTO 15: PHASE 4 TEST SETUP - $\pm M_Y$ CYCLIC LOADING

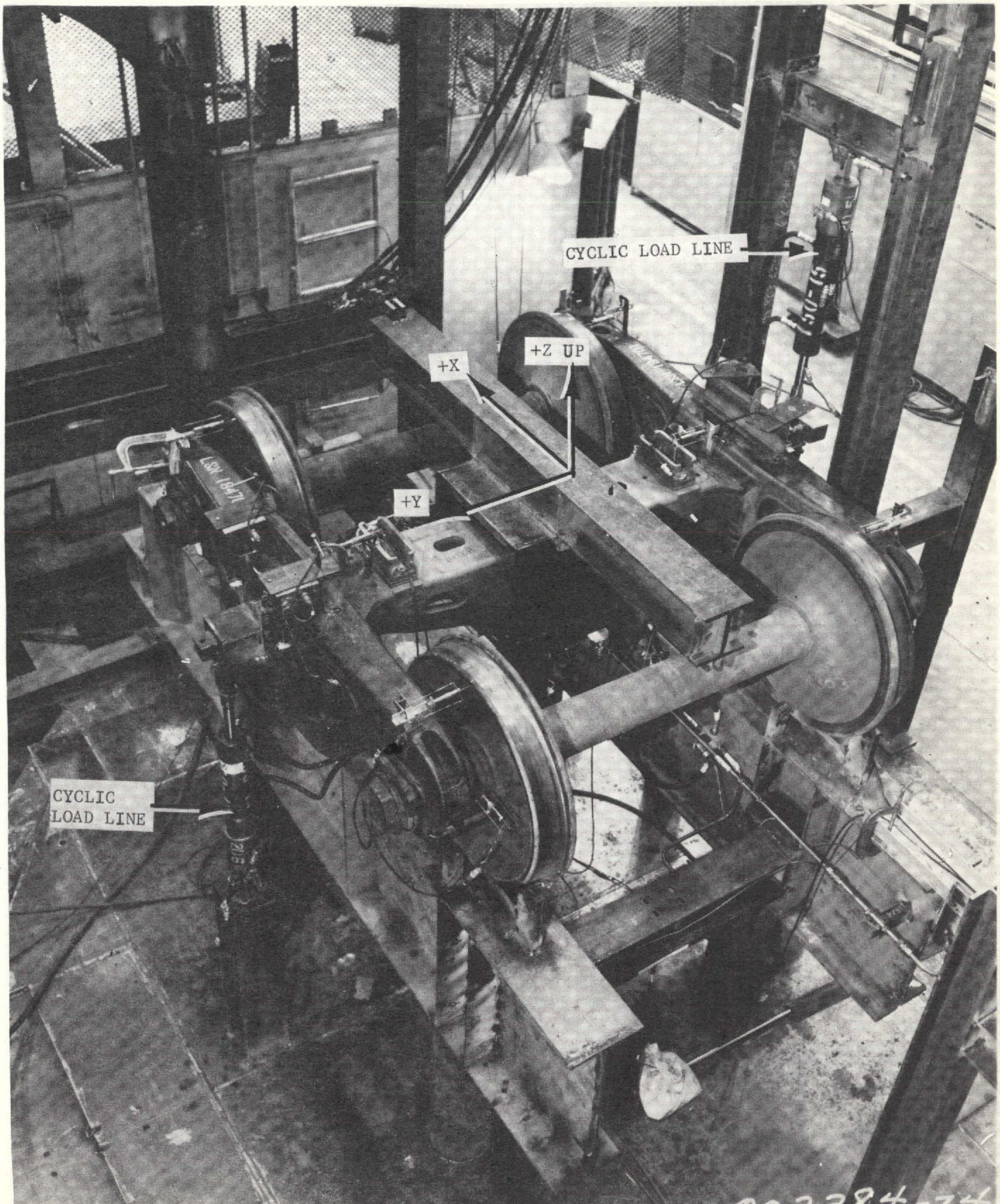

PHOTO 16: PHASE 5 TEST SETUP - $\pm \dot{M}_X$ CYCLIC LOADING

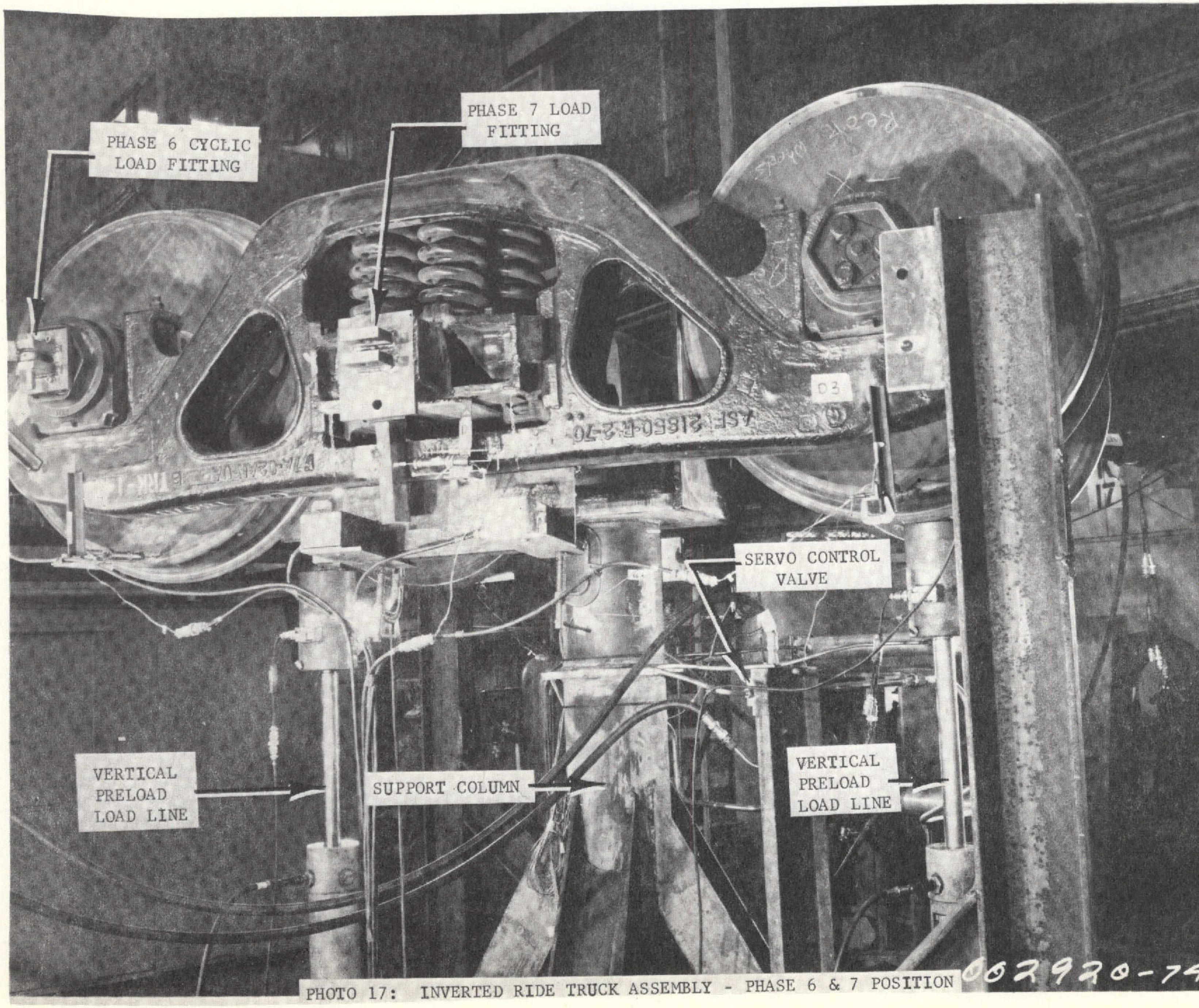

PHOTO 17: INVERTED RIDE TRUCK ASSEMBLY - PHASE 6 & 7 POSITION

lozenge mode characteristics. The line of action of the racking loading is through the Z-axis so that no rotation of the ride truck results. The interface between the body center plate and bolster is dry, that is, no lube pads were used during Phase 6. Photo 18 presents the setup.

Phase 7 testing was conducted to measure the breakaway torque at the interface between the body center plate and bolster. Both the lube and non-lube condition were tested. Bolster vertical loading was introduced using the two vertical load lines and the tension load in the load lines perpendicular to the bolster lateral axis was increased until bolster rotation was observed. Photo 19 presents the setup.

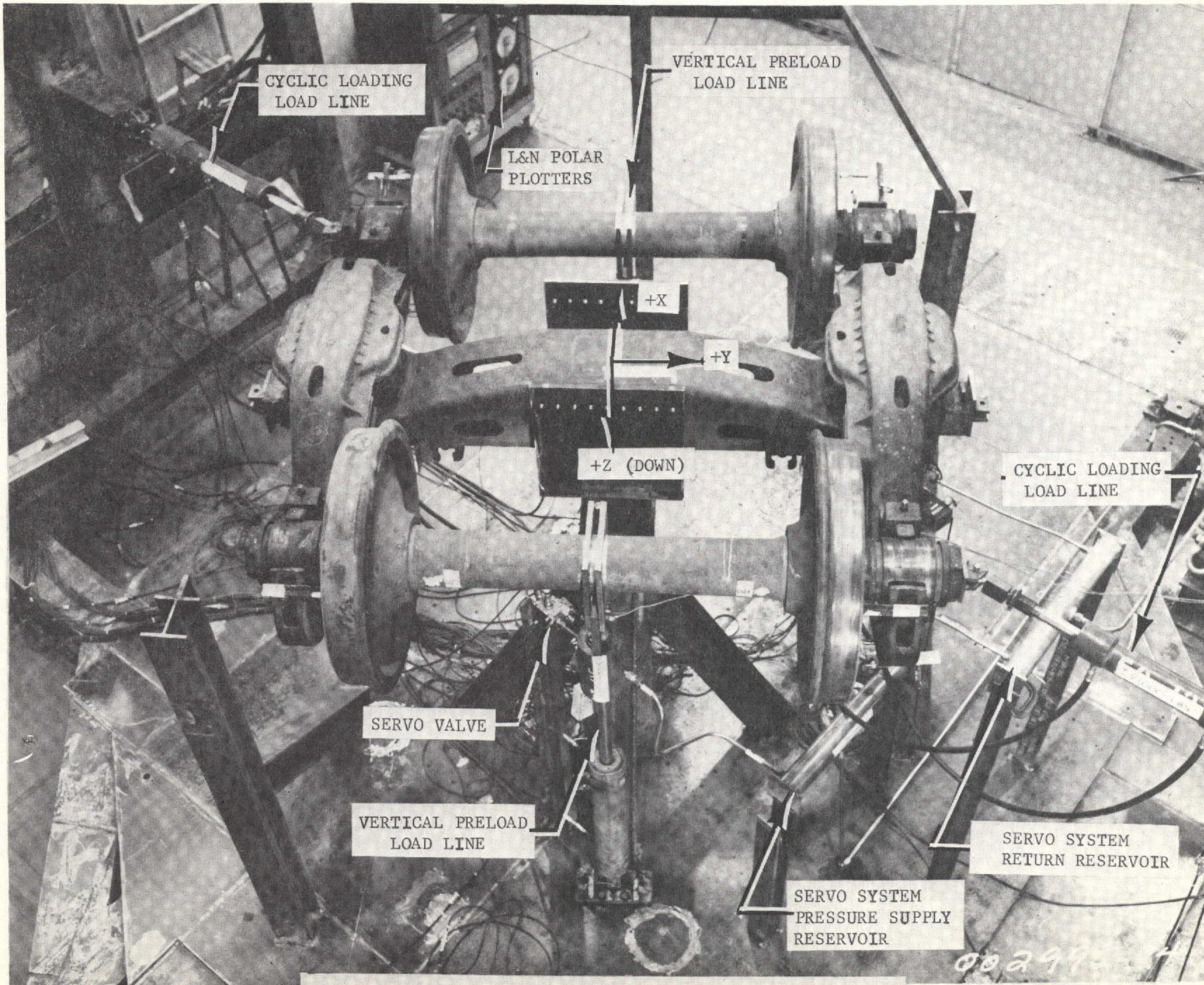

PHOTO 18: PHASE 6 SETUP - LOZENGE MODE RACKING LOADING

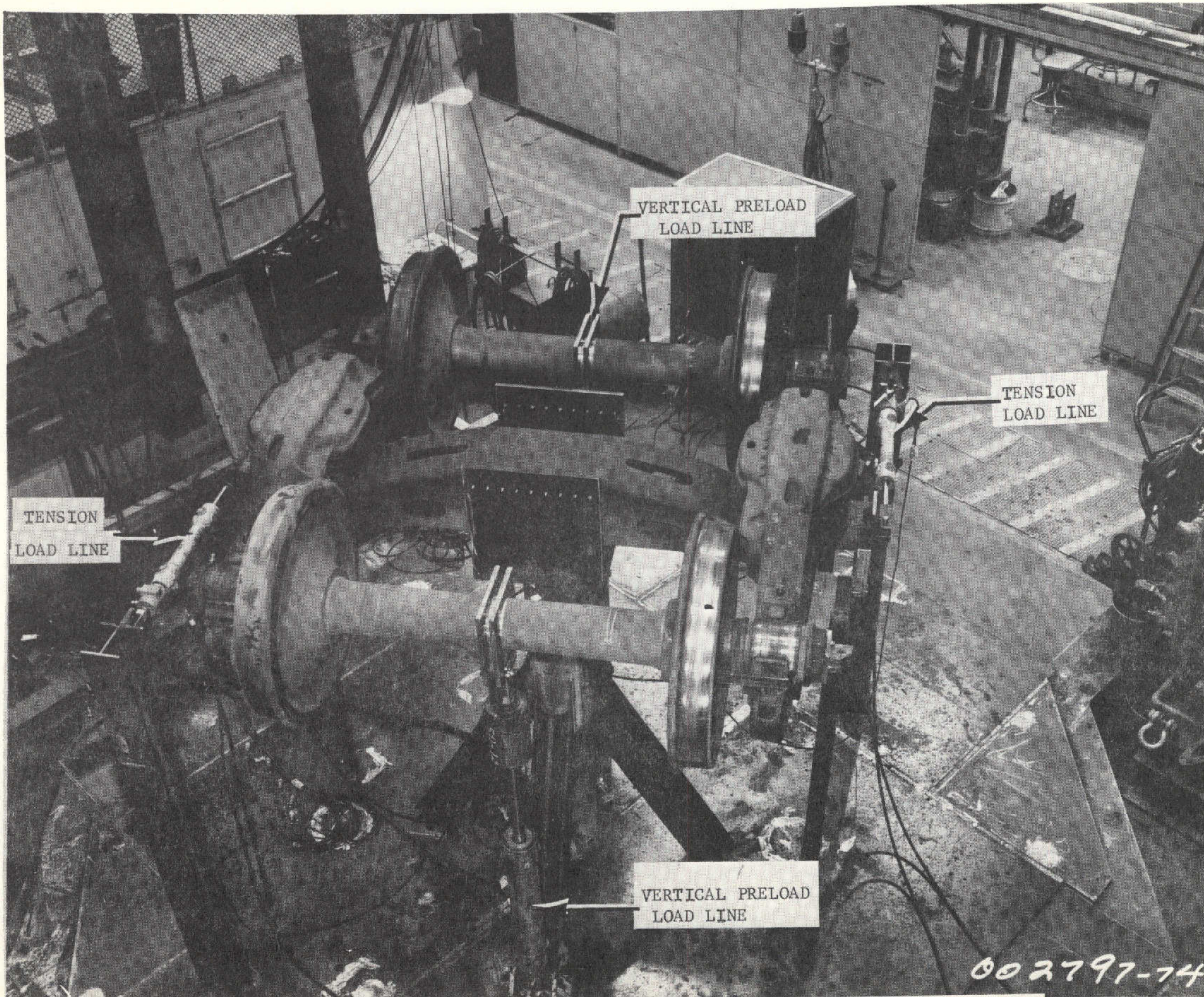

PHOTO 19: PHASE 7 TEST SETUP - BOLSTER TORQUE/FRICTION BREAKAWAY

4.0 INSTRUMENTATION

Instrumentation utilized in this test included load cells for monitoring applied loads; deflection transducers for monitoring relative deflections of the ride truck components; and recording equipement.

Load cells were used in each hydraulic load line to monitor all applied loads. These load cells are calibrated to a known applied load with a resulting voltage output. This voltage signal was recorded on magnetic tape and Leets and Northrup polar plots and also was used as feedback for the servo system. Photos 10 and 12 show the load cell used in Phase 1 through 5 testing to monitor the vertical preloading. Photo 13 shows the location of the load cell used in the lateral and moment load lines. Photo 17 shows the load cells used for Phases 6 and 7 vertical loading load lines.

Two types of deflection transducers were used for monitoring relative deflections of the ride truck. The output from these transducers is a continuous DC voltage that had been calibrated to a known deflection. Linear variable deflection transducers (LVDT) and Structure's Lab deflection transducers (SLDT) were utilized. MMC drawing LAB1007045, sheets 14 and 15, (Appendix B of this report) show the nominal location of the transducers. The accuracy of the LVDT is ±0.010 inch while that of the SLDT is ±0.030 inch. A tension load on the transducer represents a positive (+) deflection, while a compression load represents a negative (-) deflection. Photos 10, 14, 20 and 21 show typical deflection transducer installation. Tables 2 and 3 of Test Procedure MCR-74-436, were completed and give actual deflection transducer location for all phases

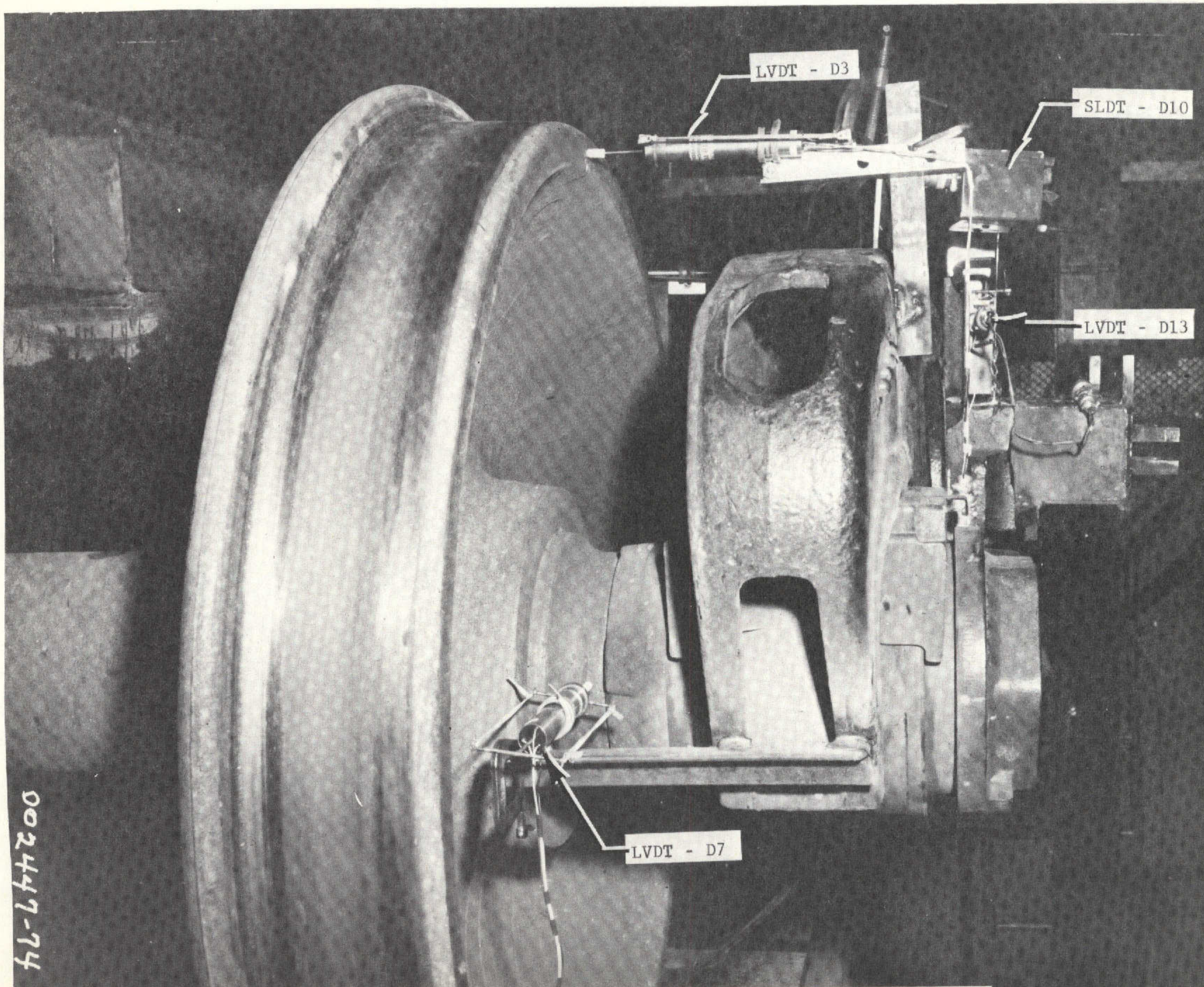

PHOTO 20: TYPICAL LINEAR VARIABLE DEFLECTION TRANSDUCER (LVDT) INSTALLATION

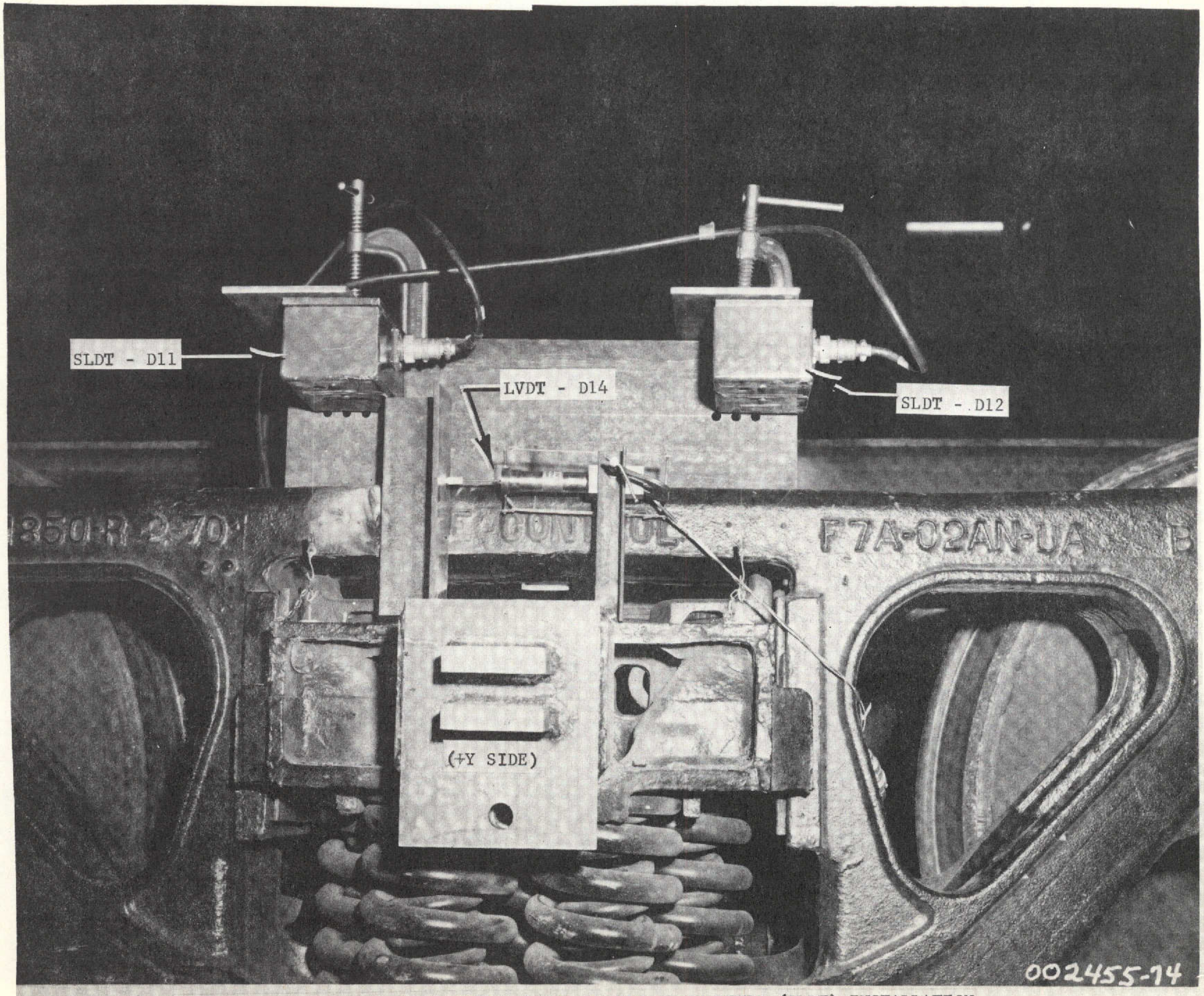

PHOTO 21: TYPICAL STRUCTURE'S LAB DEFLECTION TRANSDUCER (SLDT) INSTALLATION

of testing. These tables are included in the Test Log portion of Appendix A.

Recording equipment used in this test included two Bristol strip recorders, four Leeds and Northrup polar plotters, and a low level analog to digital recording system. The Bristol strip recorders (Photo 4) were used in the servo control system to record the cyclic load line output. The Leeds and Northrup (L&N) polar platters (Photo 18) were used to record the load cell outputs from all other load lines. The low level analog to digital recording system was used to record all loading and deflection data on magnetic tape. Each channel of data was recorded 100 times each second. A computer printout of the data was then made from the magnetic tape.

5.0 TEST RESULTS

The results of the ride truck assembly testing is presented in both plots and tabular data. For Phases 1 through 6, there are 234 plots included. Graphs of load plotted against deflection for particular deflection transducers are presented rather than the raw computer tab run data. The data collected for Phase 7 testing was the breakaway torque of the bolster/body center plate interface cup for both lube and non-lube conditions.

The vertical axis of all graphs presents the applied load in pounds while the horizontal axis presents the resulting deflection for a particular deflection gage. The time the data collection was started is in the lower left corner of the plot. The deflection gage identification number is listed on the bottom of the page; for example, D9X10. A positive deflection represents tension on the deflection gage while a negative deflection results from compression. Sheets 14 and 15 of MMC drawing LAB1007045, Appendix B, gives the gage locations. The legend in the upper left corner indicates which load cell is being plotted. Above the legend is the title of the test phase followed by the date the test was conducted.

Figures 1 through 4 present the plots resulting from Phase 1 testing. The vertical loading (LC01) was increased and data collected in four increments; 20,000 pounds, 50,000 pounds, 75,000 pounds and 100,000 pounds. Data was continuously recorded as the vertical loading was freely allowed to return to zero. The offset from the initial loading represents

friction present suspension system. Plots are presented for deflection gages D9, D10, D11 and D12. No significant deflections were recorded on any other gages.

For Phases 2 through 6, the deflection gages were system calibrated and zeroed before each phase of testing was conducted. No attempt was made to return the ride truck assembly to the initial nominal or zeroed position between loading increments. Therefore, shifts in the plots for various gages may be noted throughout the plots presented and do not effect the local hysterisis or friction characteristics.

Figures 5 through 58 present the plots from Phase 2 testing. Those gages with significant deflections are D1 through D6, D15, D16 and D18. The cyclic lateral load applied in the ±Y axis to the bolster was ±10,000 pounds. The plots presented are figures 5 through 13 for 20,000 pound vertical loading with 0.50 Hz lateral cyclic loading; figures 14 through 22 for 20,000 pound vertical loading with 0.25 Hz lateral cyclic loading, figures 23 through 31 for 50,000 pound vertical loading with 0.50 Hz lateral cyclic loading, figures 32 through 40 for 50,000 pound vertical loading with 0.25 Hz lateral cyclic loading, figures 41 through 49 for 100,000 pound vertical loading with 0.50 Hz lateral cyclic loading, and figures 50 through 58 for 100,000 pound vertical loading with 0.25 Hz lateral cyclic loading.

For Phase 3 testing, only gages D9 through D12 registered significant deflections and these deflections resulted from the vertical loading rather than the cyclic lateral loading. Since the data from Phase 1 defined the suspension system characteristics using deflections from gages D9 through D12, the decision was made by the technical director

that no plots were required for Phase 3.

Figures 59 through 94 present the plots from Phase 4 testing. Significant deflections were recorded on gages D9 through D12, D13 and D14 and plots for those gages are included. A moment ($\pm M_y$) cyclic loading was applied to the ride truck assembly. Each plot includes the load/deflection data for the two load cells producing the cyclic moment. The plots presented are figures 59 through 64 for 20,000 pound vertical loading with 0.50 Hz cyclic moment loading, figures 65 through 70 for 20,000 pound vertical loading with 0.25 Hz cyclic moment loading, figures 71 through 76 for 50,000 pound vertical loading with 0.25 Hz cyclic moment loading, figures 77 through 82 for 50,000 pound vertical loading with 0.50 Hz cyclic moment loading, figures 83 through 88 for 100,000 pound vertical loading with 0.50 Hz cyclic moment loading, and figures 89 through 94 for 100,000 pound vertical loading with 0.25 Hz cyclic moment loading.

Figures 95 through 154 present the plots from Phase 5 testing. Significant deflections were recorded on D1 through D6 and D9 through D12 and plots only for those gages are presented. A cyclic moment ($\pm M_x$) loading is applied to the ride truck assembly. The load/deflection plot for the two load cells against each applicable deflection gage is included on each plot. The plots presented are for 20,000 pound vertical loading figures 95 through 104 at 0.50 Hz cyclic moment loading and figures 105 through 114 at 0.25 Hz cyclic moment loading, for 50,000 pound vertical loading figures 115 through 124 at 0.25 Hz cyclic moment loading and figures 125 through 134 at 0.50 Hz cyclic moment loading, and for 100,000 pound vertical loading figures 135 through 144 at 0.50 Hz cyclic moment loading and figures 145 through 154 at 0.25 Hz cyclic moment loading.

Phase 6 testing required three separate runs to complete. These runs are designated 6-1, 6-2 and 6-3. Significant deflections were recorded on gages D1 through D16 and D19 through D22. For Phase 6-1, Figures 155 through 174 are for 100,000 pound vertical loading with ±10,000 pound cyclic racking loading applied at 0.50 Hz. For Phase 6-2, Figures 175 through 195 are for 20,000 pound vertical loading with ±10,000 pound cyclic racking loading applied at 0.50 Hz. Phase 6-3 presents plots from additional testing at 20,000 pound vertical loading with reduced cyclic racking loading. Figures 195 through 214 are plots for ±2,000 pound cyclic racking loading at 0.50 Hz and Figures 215 through 234 are plots for ±5,000 pound cyclic racking loading at 0.50 Hz.

It should be noted that no lube pads were used for Phase 6 testing and that there was no rotation or translation between the bolster and the body center plate during the testing.

Phase 7 testing was conducted to determine the breakaway torque between the bolster and body center plate for both the lubed and non-lubed condition. Each test was conducted with 20,000 pound, 50,000 pound and 100,000 pound vertical loading. A tension couple with a moment arm between the loads of 106.24 inches was continuously increased until the bolster rotated.

Table 1 presents the data collected for the lubed condition of the bolster/body center plate interface. Inspection of the lube pads after testing showed that the pads were not fully compressed to fill the available bearing area so that during the testing the breakaway torque measured would be between the metal and lube pad.

Table 1. Phase 7--Bolster/Body Center Plate Lubed Condition

Run No.	Total Vertical Load (lbs)	Lateral Load (lbs)		Breakaway Torque (LCØ3+LCØ4)*(53.12) (in-lb)
		LCØ3	LCØ4	
1	20,320.	154.80	144.00	15,900.
2	20,240.	126.80	140.80	14,200.
3	20,080	123.20	127.60	13,300.
4	50,040.	156.40	162.80	16,950.
5	50,160.	146.00	154.00	15,950.
6	49,880.	184.00	193.60	20,050.
7	99,600.	253.60	265.60	27,600.
8	99,760.	226.00	237.20	24,600.
9	99,840.	224.80	238.80	24,600.

Table 2 presents the data collected for the non-lubed condition. Inspection of the bearing area after testing showed definite metal scratches at the high spots between the bolster and body center plate. This indicates that point loading rather than complete surface area bearing was present.

Table 2. Phase 7--Bolster/Body Center Plate Non-lubed Condition

Run No.	Total Vertical Load (lbs)	° Lateral load (lbs)		Breakaway Torque (LCØ3+LCØ4)*(53.12) (in-lb)
		LCØ3	LCØ4	
1	20,680.	262.00	244.00	26,880.
2	20,380.	374.00	352.00	38,560.
3	20,320.	376.00	370.00	39,630.
4	50,040.	570.00	586.00	61,400.
5	50,480.	698.00	696.00	74,050.
6	50,360.	790.00	780.00	83,400.
7	100.160.	1256.00	1286.00	135,030.
8	100,080.	1292.00	1338.00	139,700.
9	100,160.	1424.00	1460.00	153,200.
10	100,320.	1402.00	1438.00	150,860.
11	99,920.	1384.00	1424.00	149,160.
12	50,560.	954.00	970.00	102,200.
13	20,180.	586.00	590.00	62,470.

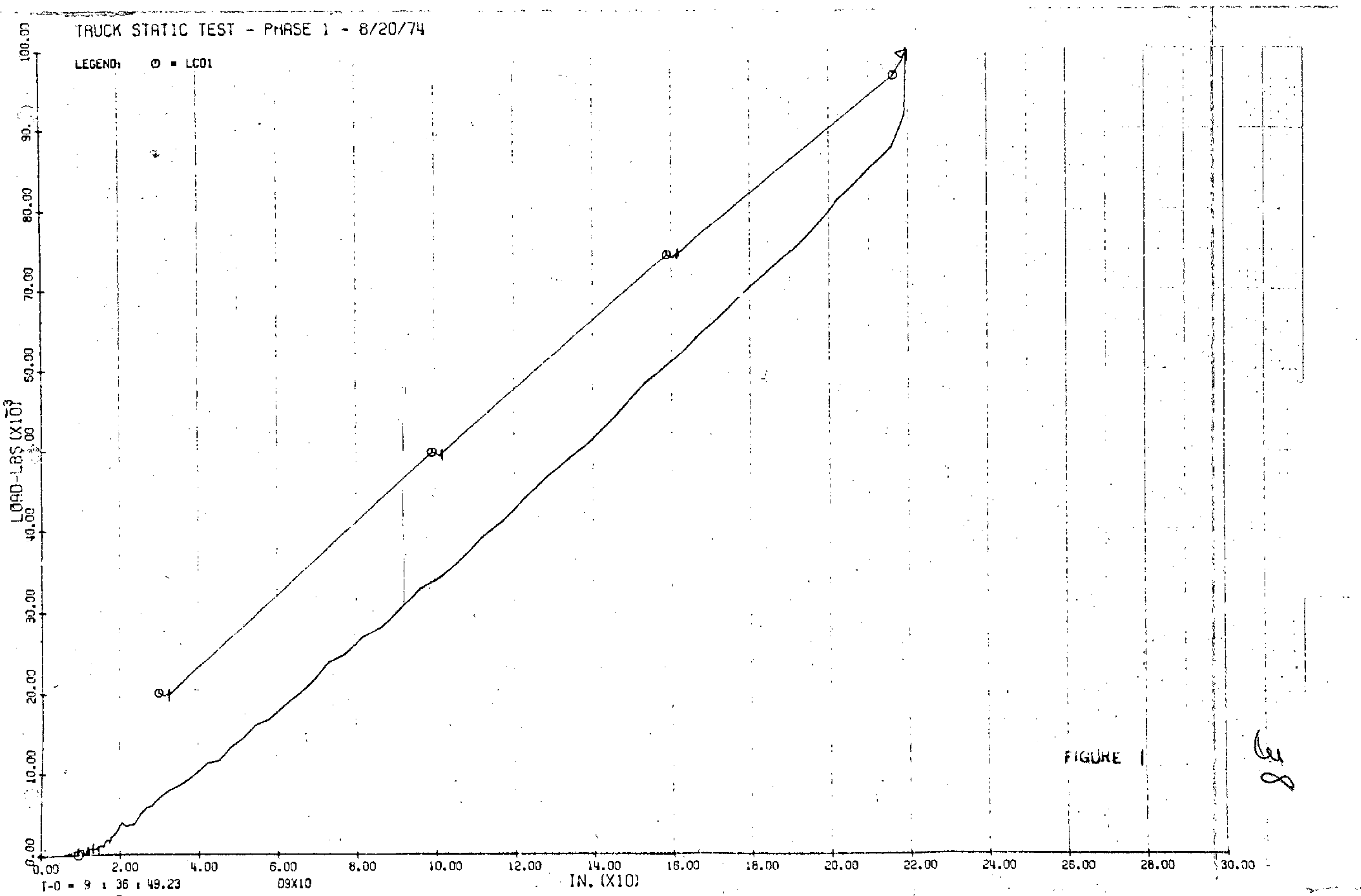
TRUCK STATIC TEST - PHASE 1 - 8/20/74
LEGEND: ⊙ = LC01
LOAD-LBS (X10^3)
0.00
10.00
20.00
30.00
40.00
60.00
70.00
80.00
90.00
100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (X10)
T-0 = 9 : 36 : 49.23
09X10

FIGURE 1

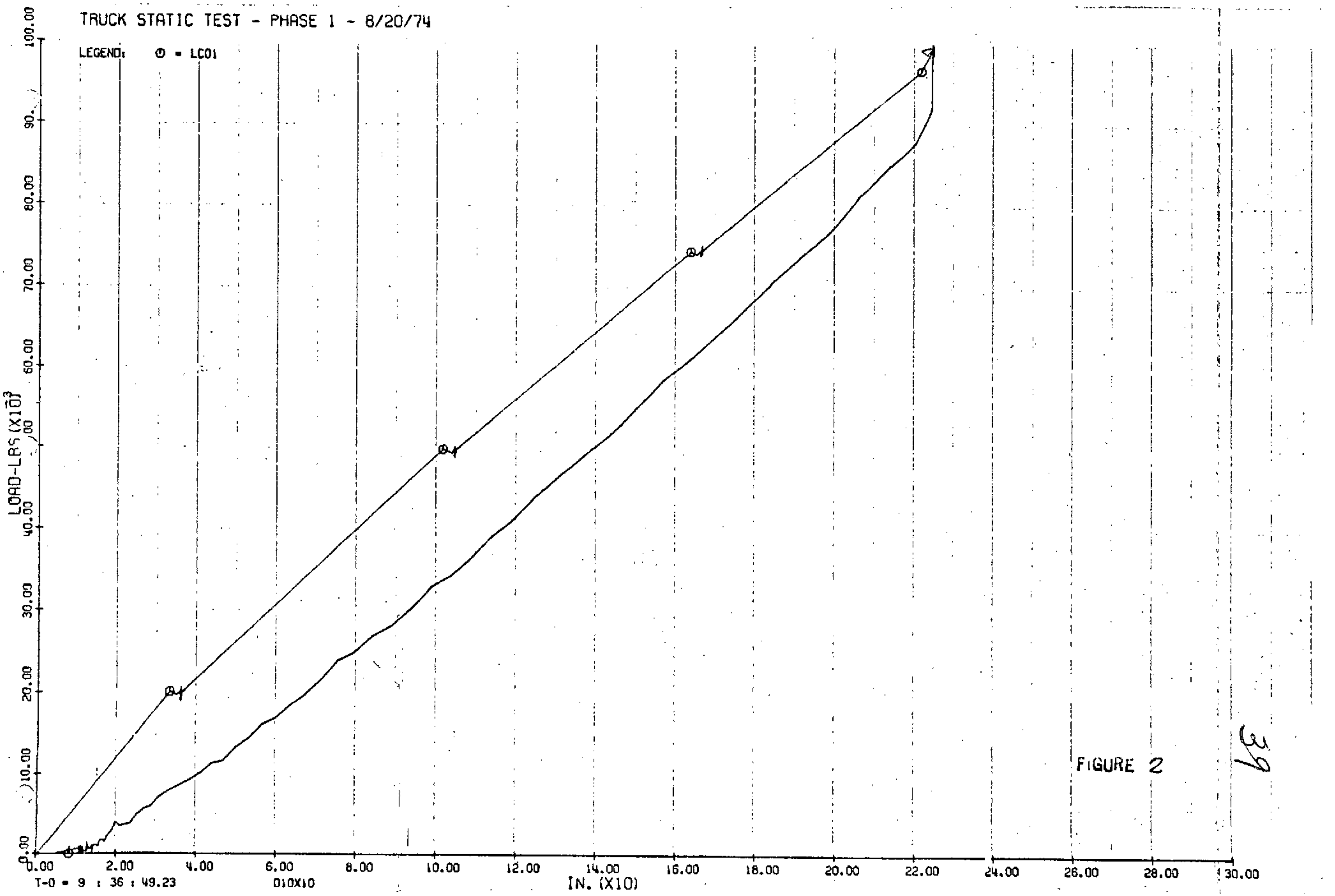
TRUCK STATIC TEST - PHASE 1 - 8/20/74
LEGEND: ⊙ = LC01
LOAD-LBS (X10³)
0.00
10.00
20.00
30.00
40.00
60.00
70.00
80.00
90.
100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
T-0 = 9 : 36 : 49.23
D10X10
IN. (X10)

FIGURE 2

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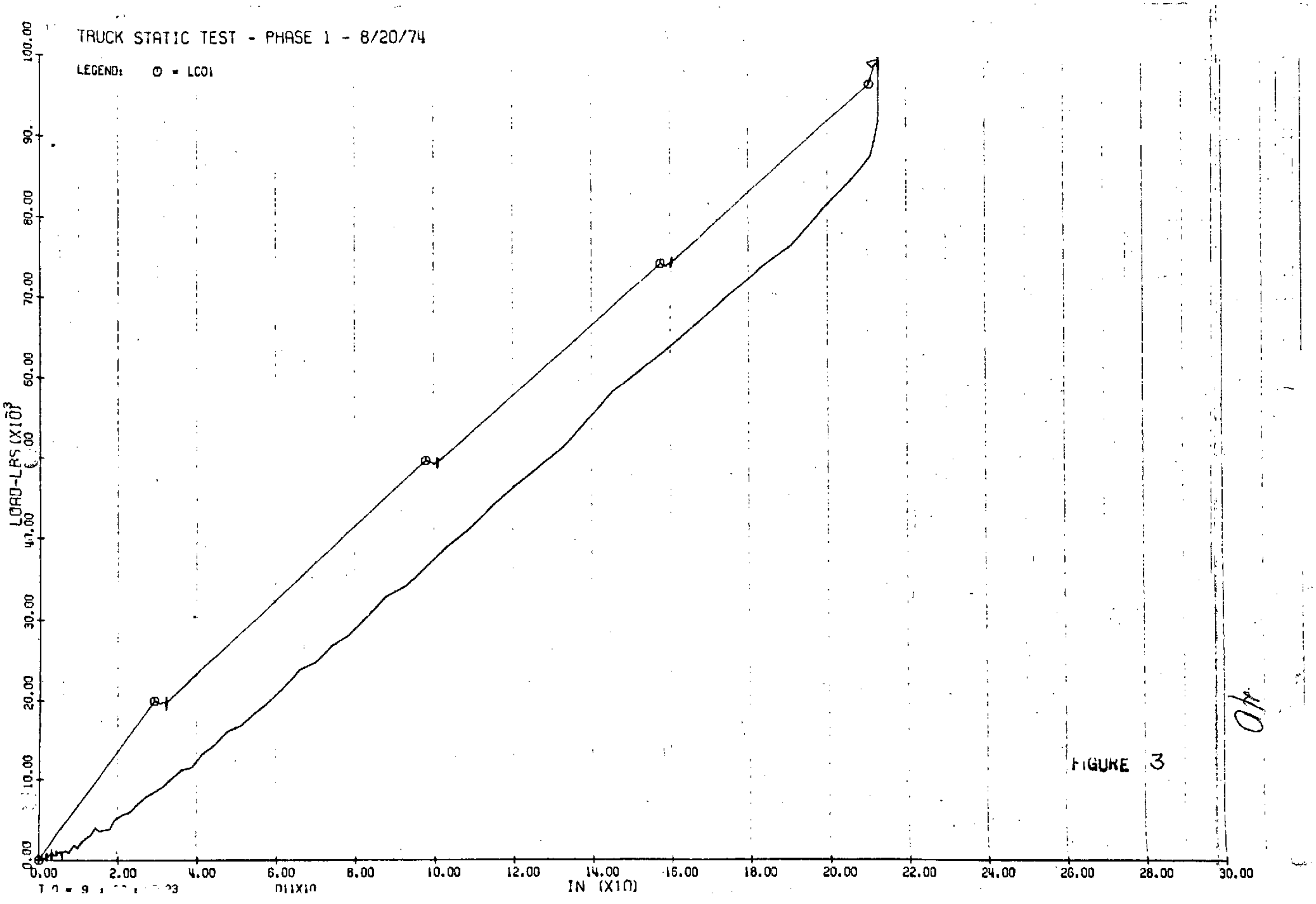
TRUCK STATIC TEST - PHASE 1 - 8/20/74
LEGEND: ⊙ = LC01
LOAD-LBS (X10^3)
0.00
10.00
20.00
30.00
40.00
60.00
70.00
80.00
90.
100.00
IN (X10)
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00

FIGURE 3

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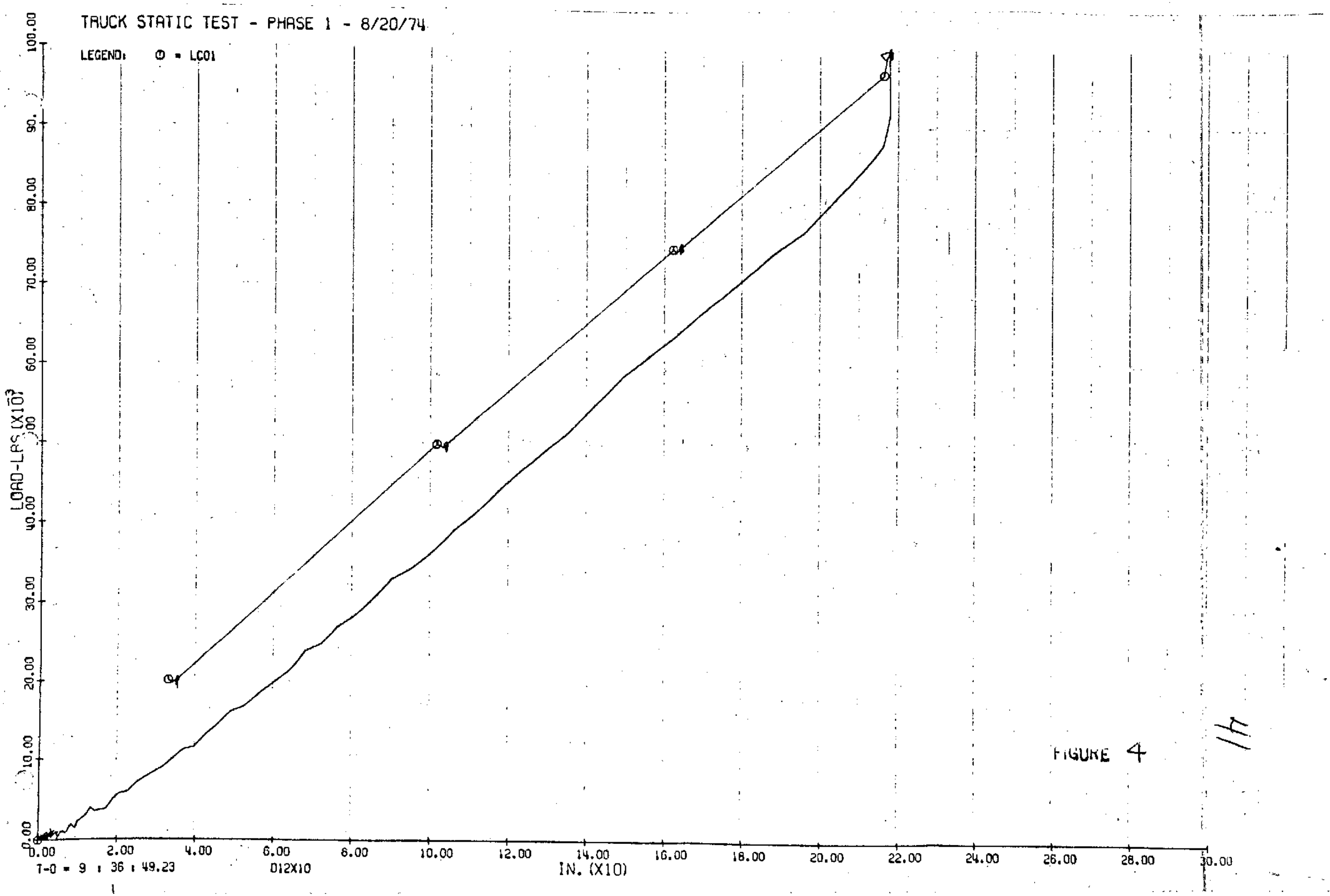
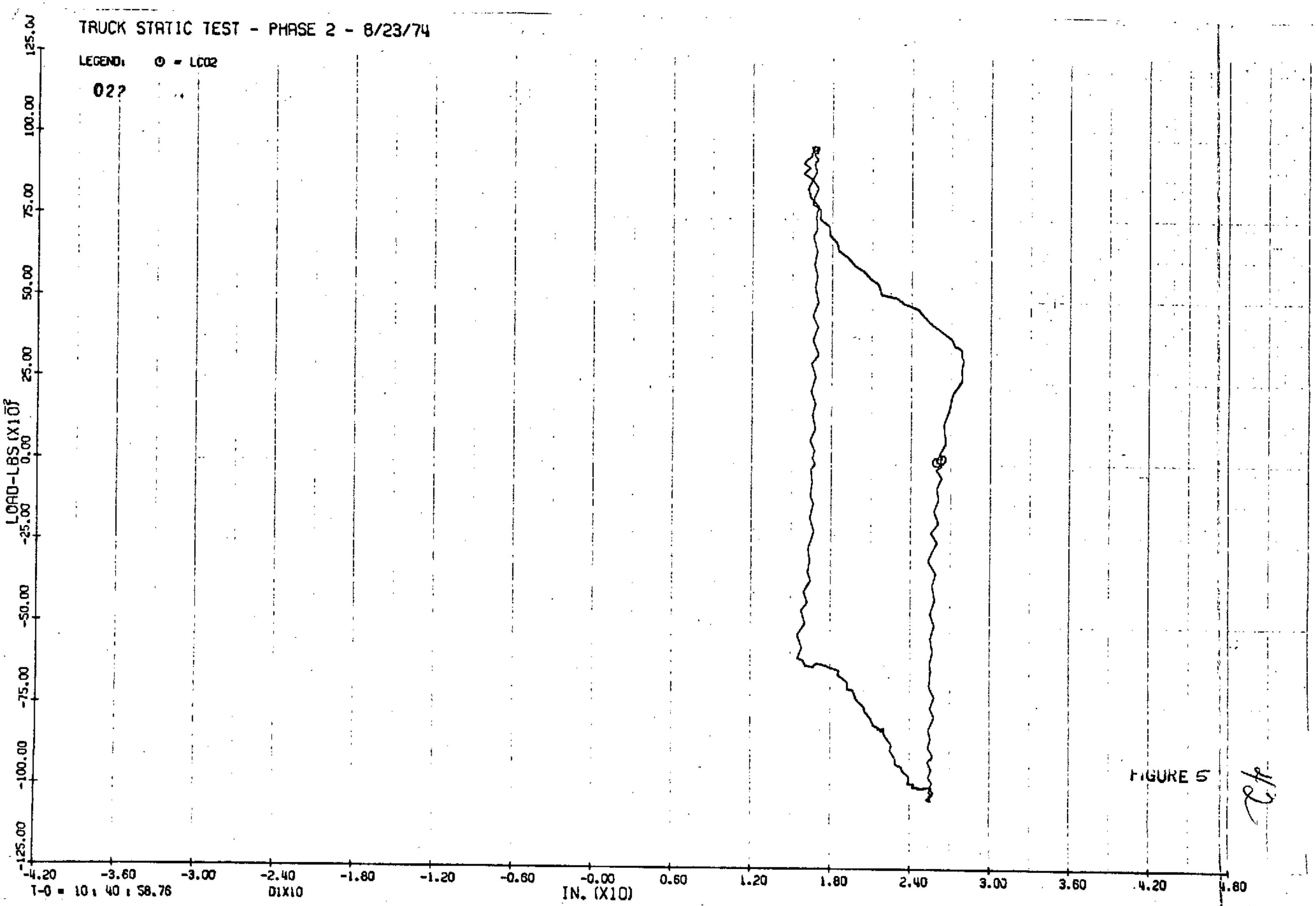

TRUCK STATIC TEST - PHASE 1 - 8/20/74
LEGEND: ⦶ = LC01
LOAD-LBS (X10³)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.
100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (X10)
T-0 = 9 : 36 : 49.23
D12X10

FIGURE 4

14



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
02?
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
T-0 = 10 : 40 : 58.76
DIX10
IN. (X10)

FIGURE 5

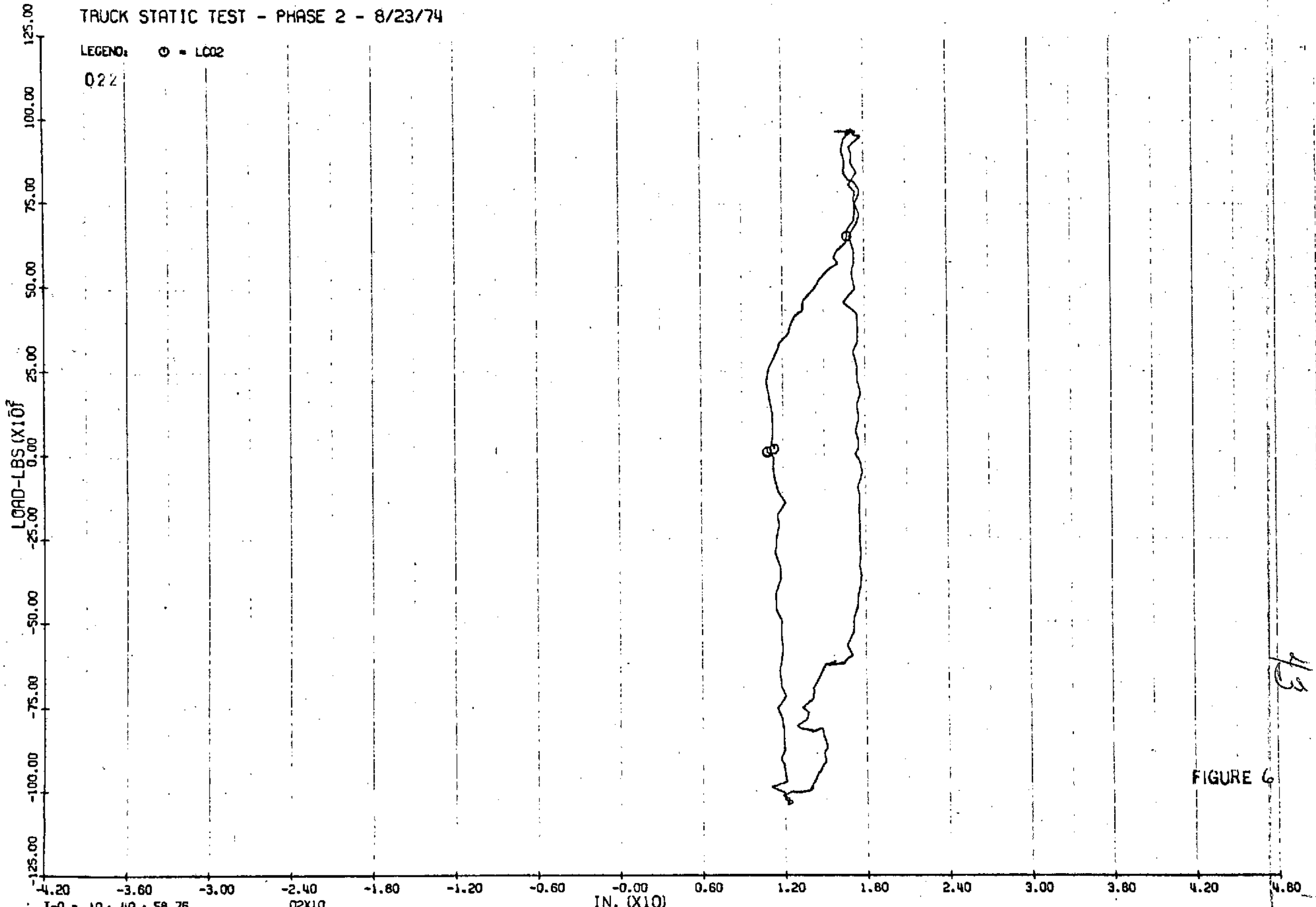
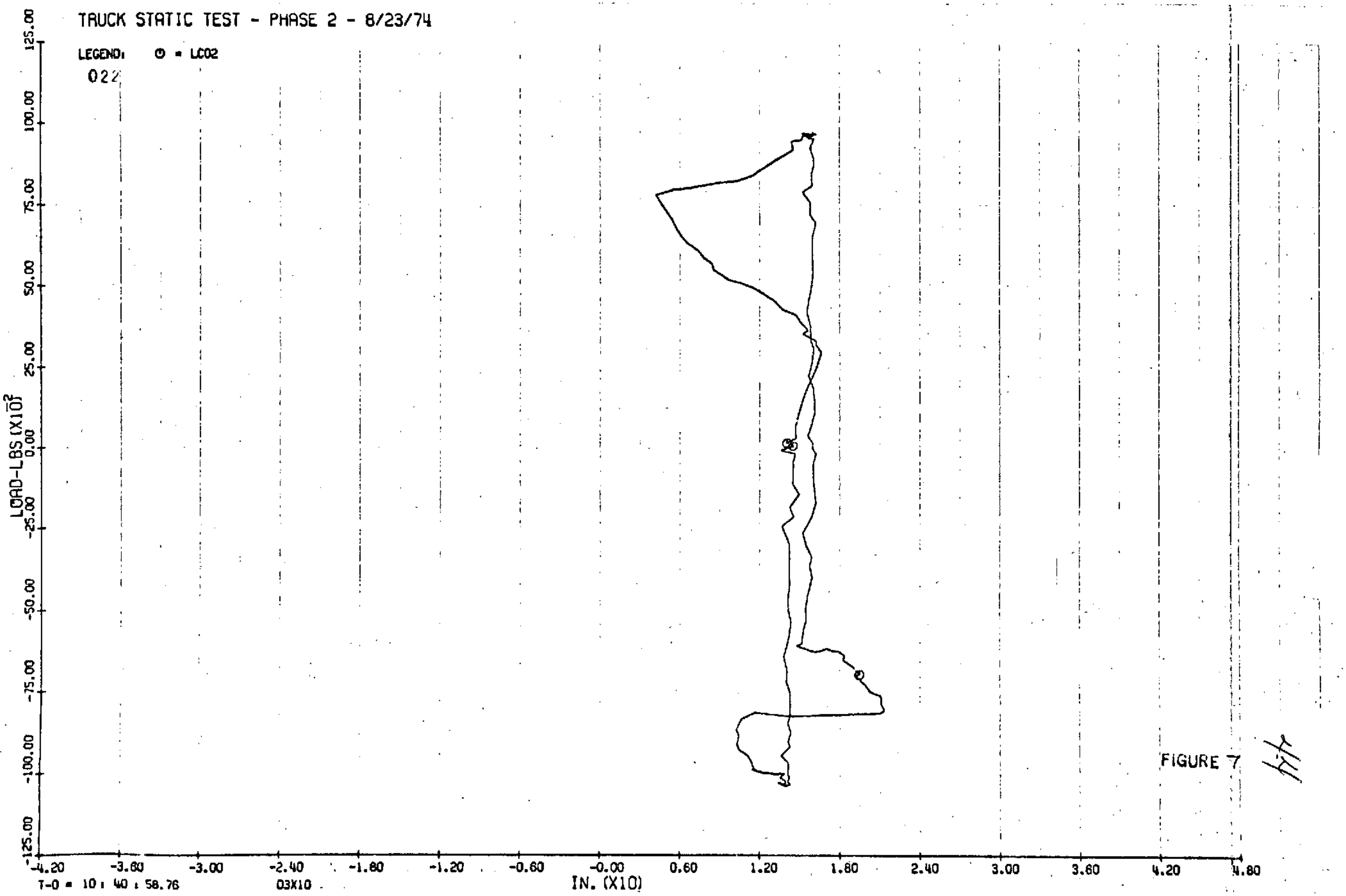

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
022
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 40 : 58.76
02X10

FIGURE 6


TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
022
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 40 : 58.76
03X10
FIGURE 7

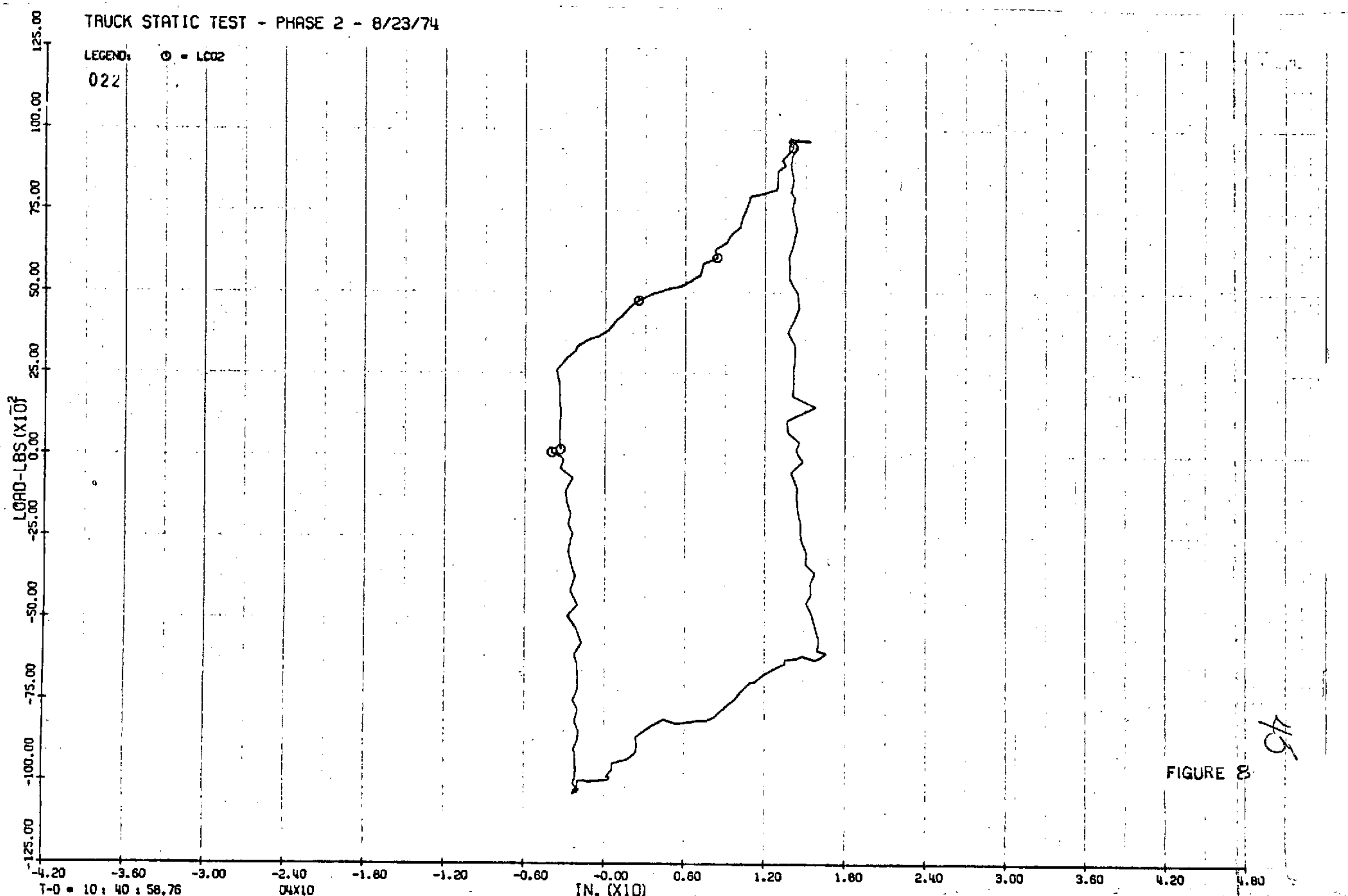
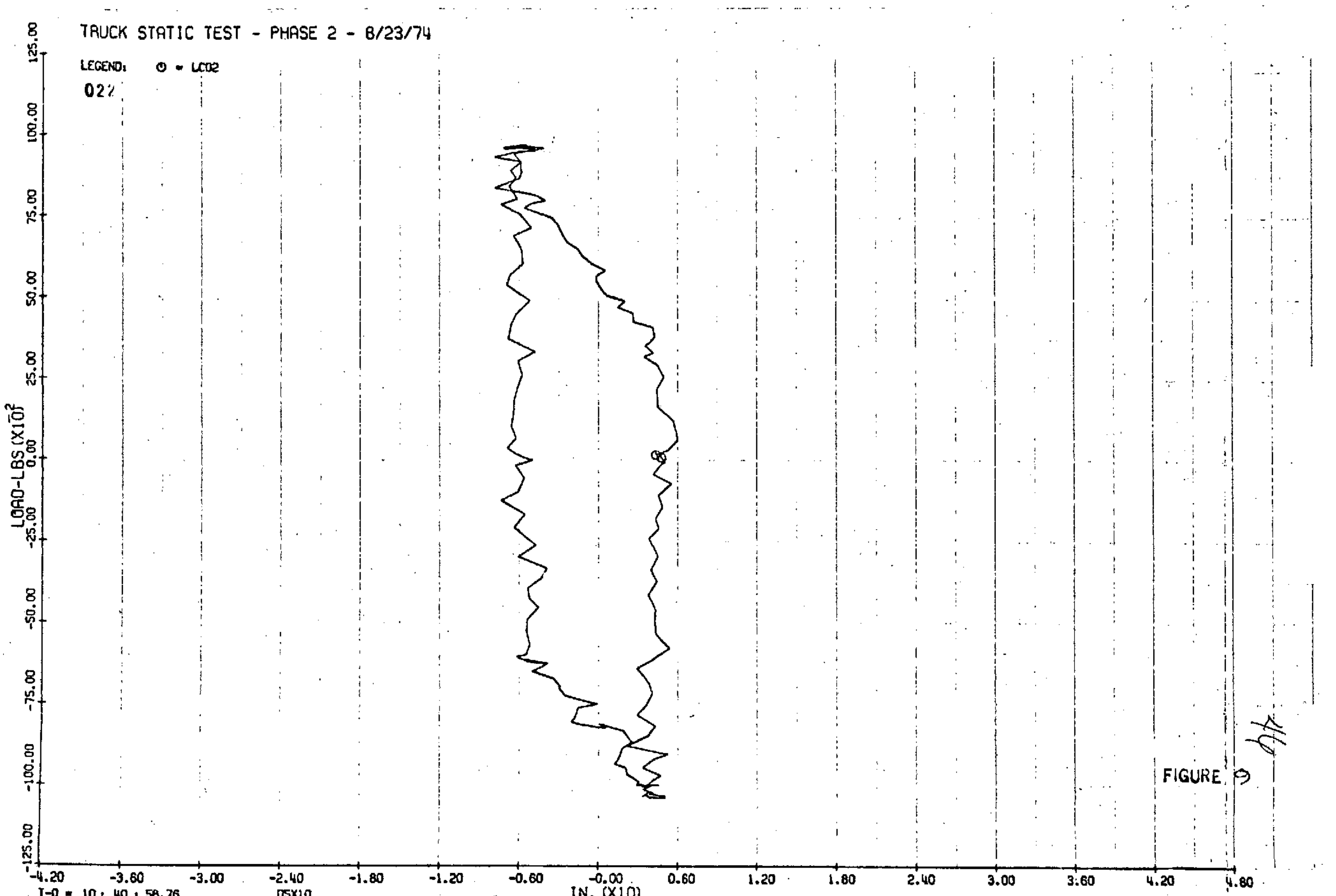

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
022
LOAD-LBS (X10^{2})
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
T-0 = 10 : 40 : 58.76
D4X10
IN. (X10)

FIGURE 8



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
022
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 40 : 58.76
DSX10

FIGURE 9

41

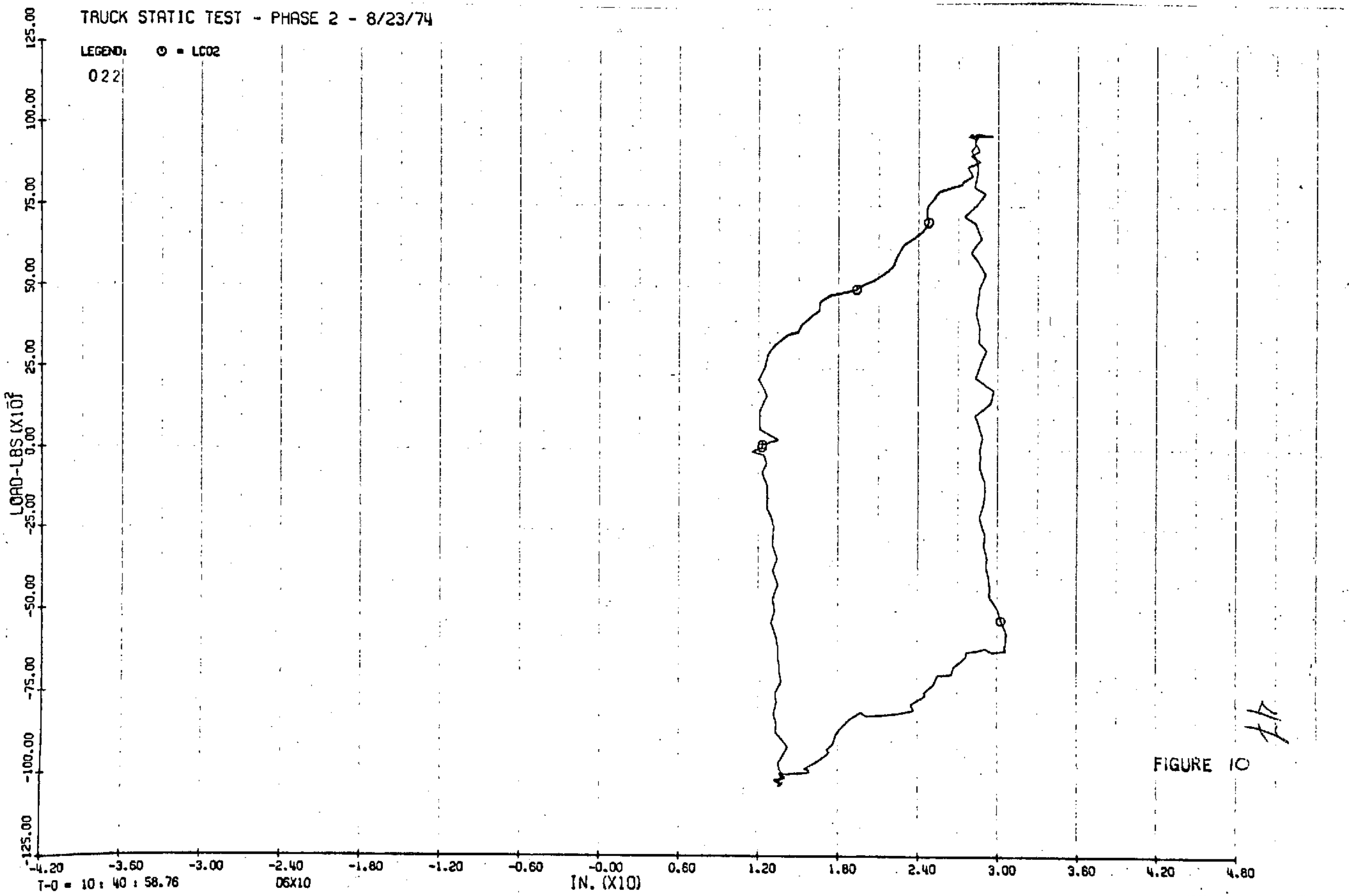

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
022
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 40 : 58.76
06X10

FIGURE 10

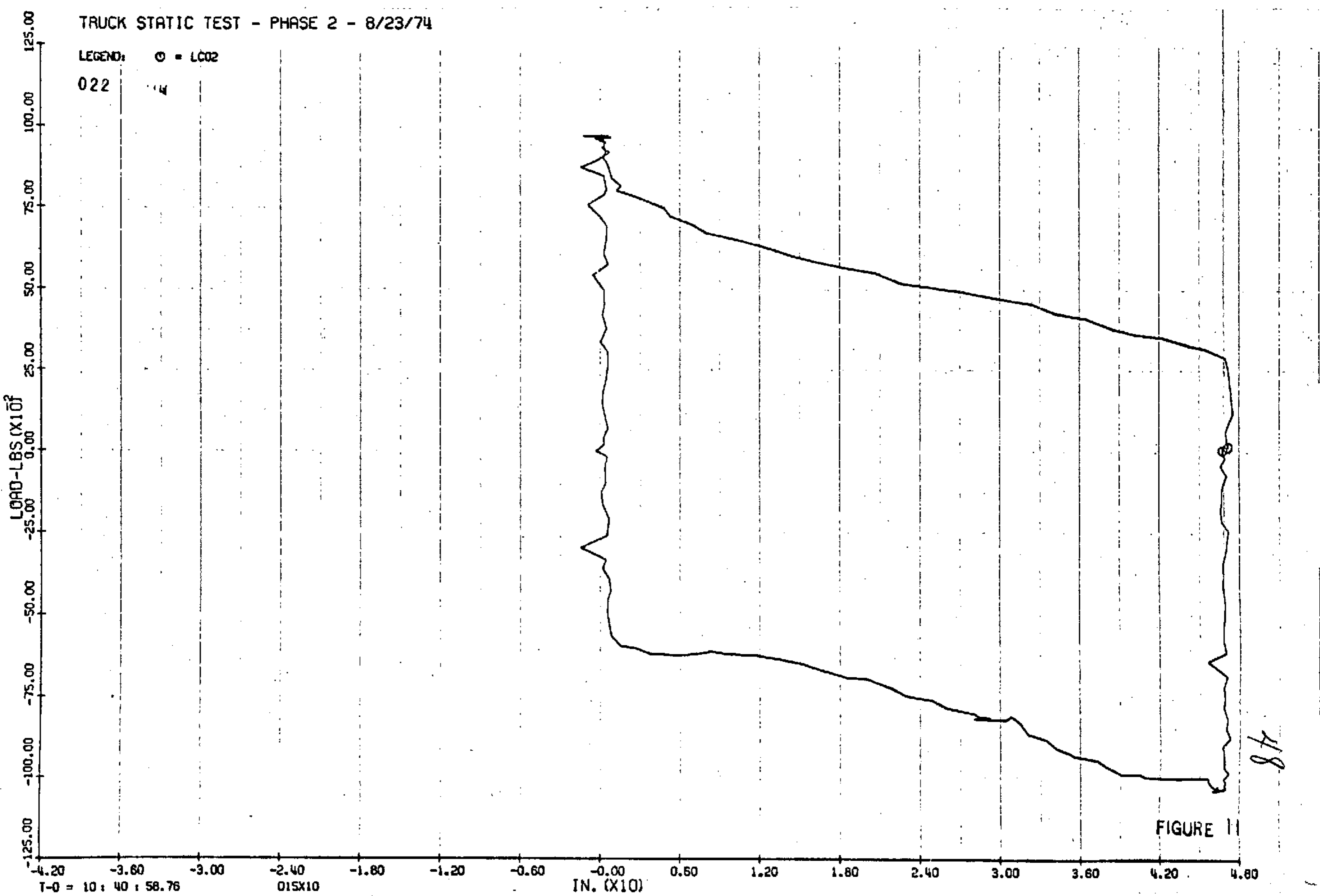
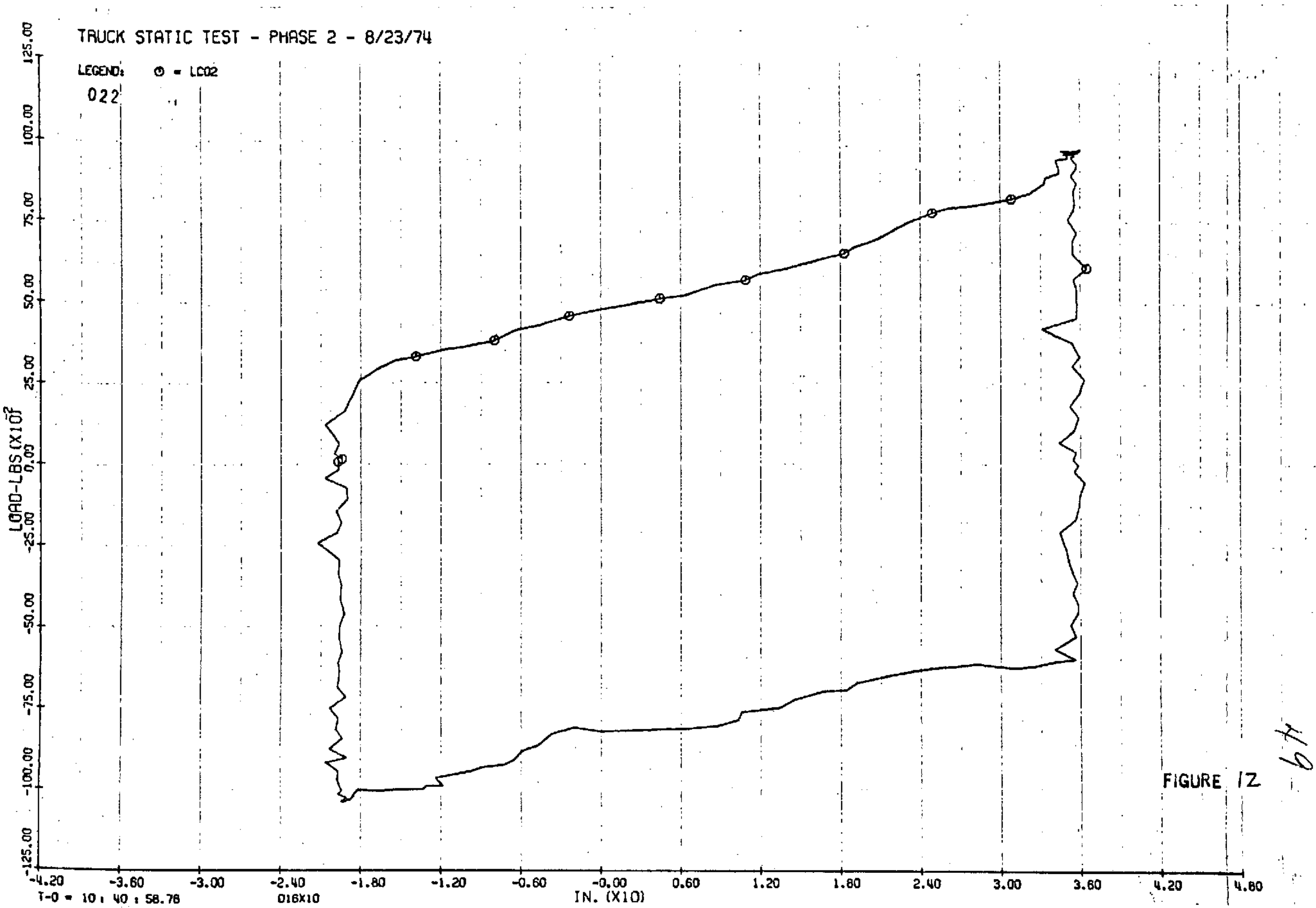

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
022
LOAD-LBS (X10^2)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 40 : 58.76
015X10

FIGURE 11

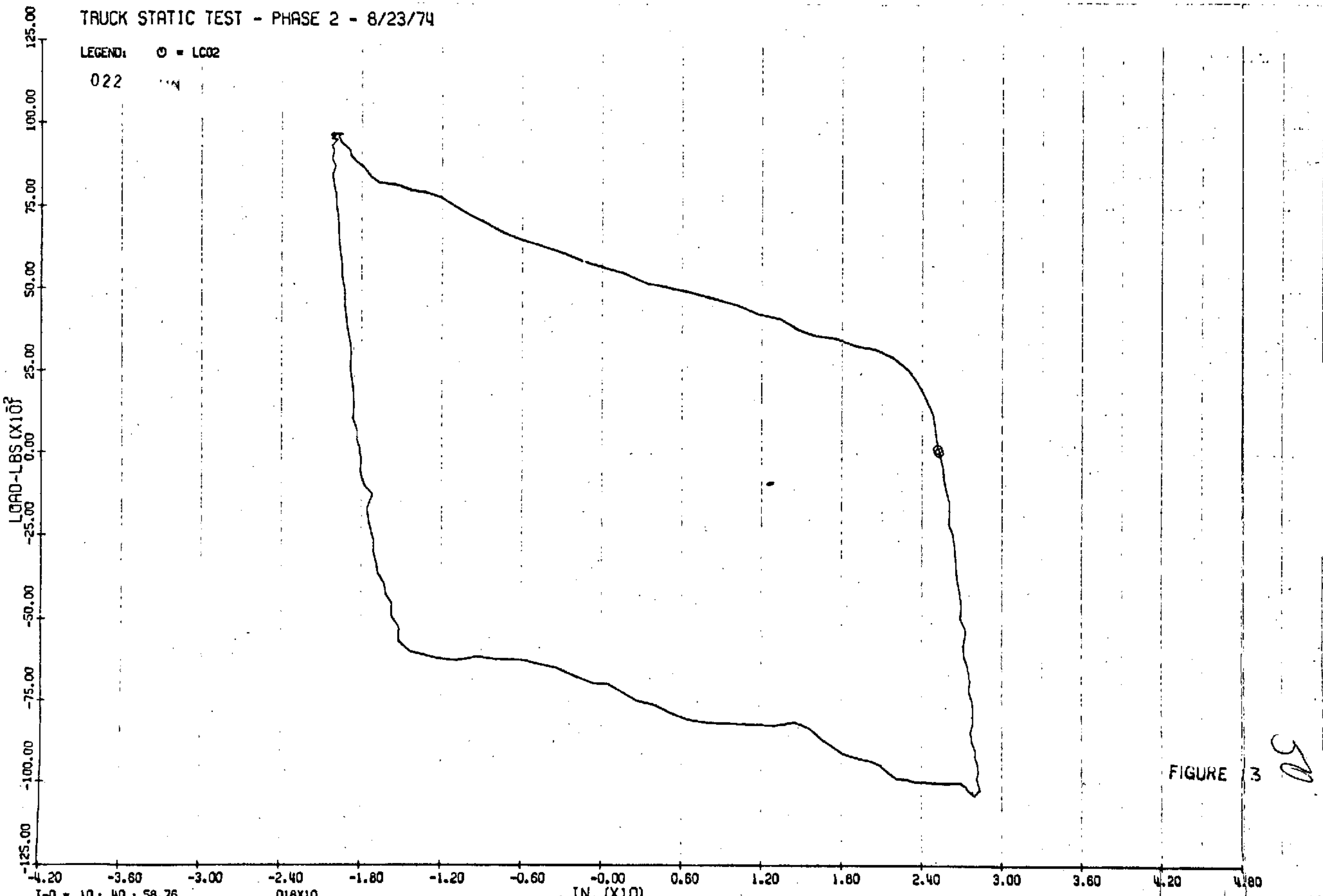
48



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
022
LOAD-LBS (X10^2)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
T-0 = 10 : 40 : 58.76
016X10
IN. (X10)

FIGURE 12

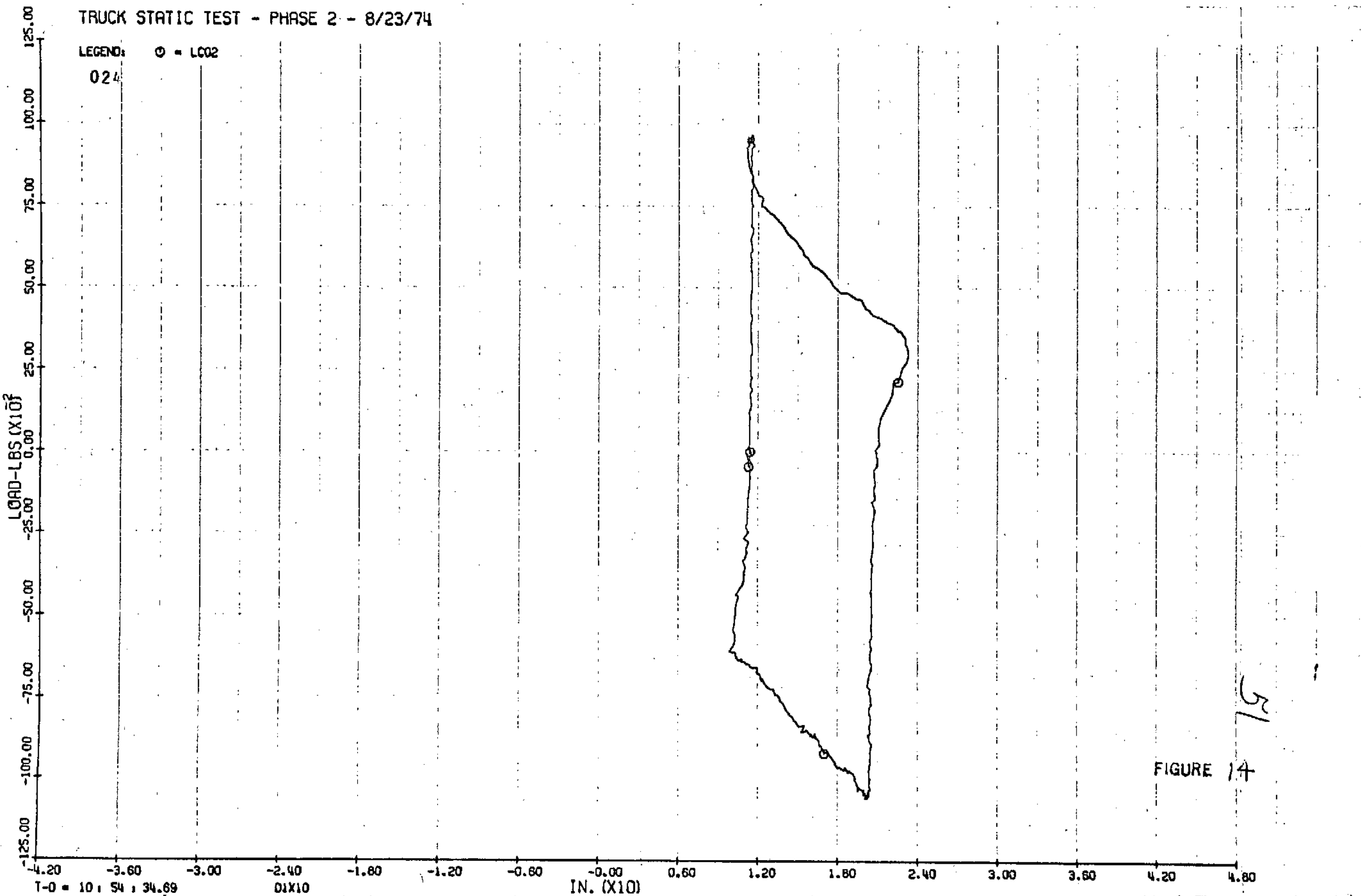
67



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊕ = LC02
022
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
T-0 = 10 : 40 : 58.76
018X10
IN. (X10)

FIGURE 3

50



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
024
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
T-0 = 10 : 54 : 34.69
D1X10
IN. (X10)
G

FIGURE 14

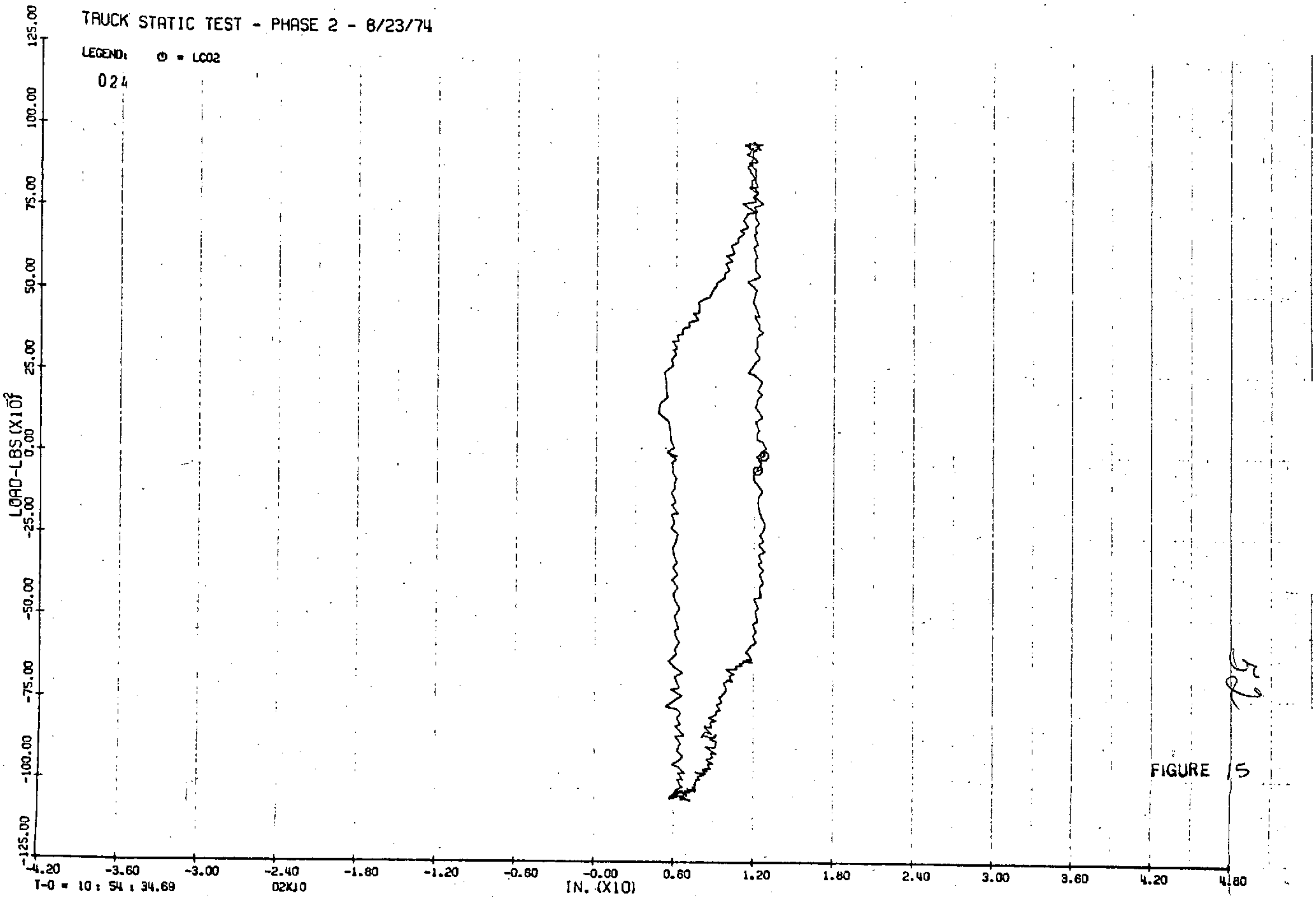
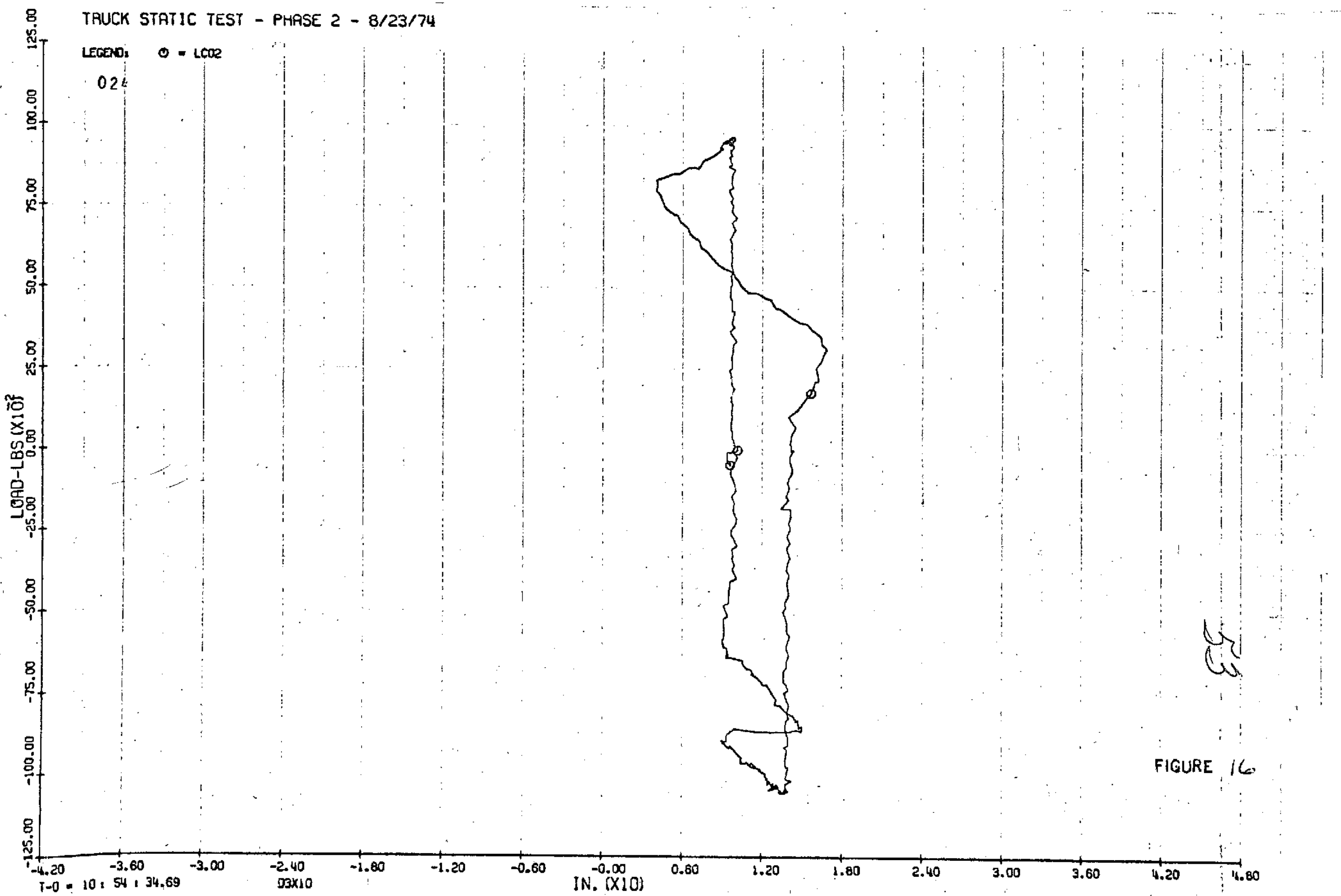

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊕ = LC02
024
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 54 : 34.69
02X10

FIGURE 15



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
02
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
T-0 = 10 : 54 : 34.69
D3X10
IN. (X10)

FIGURE 16

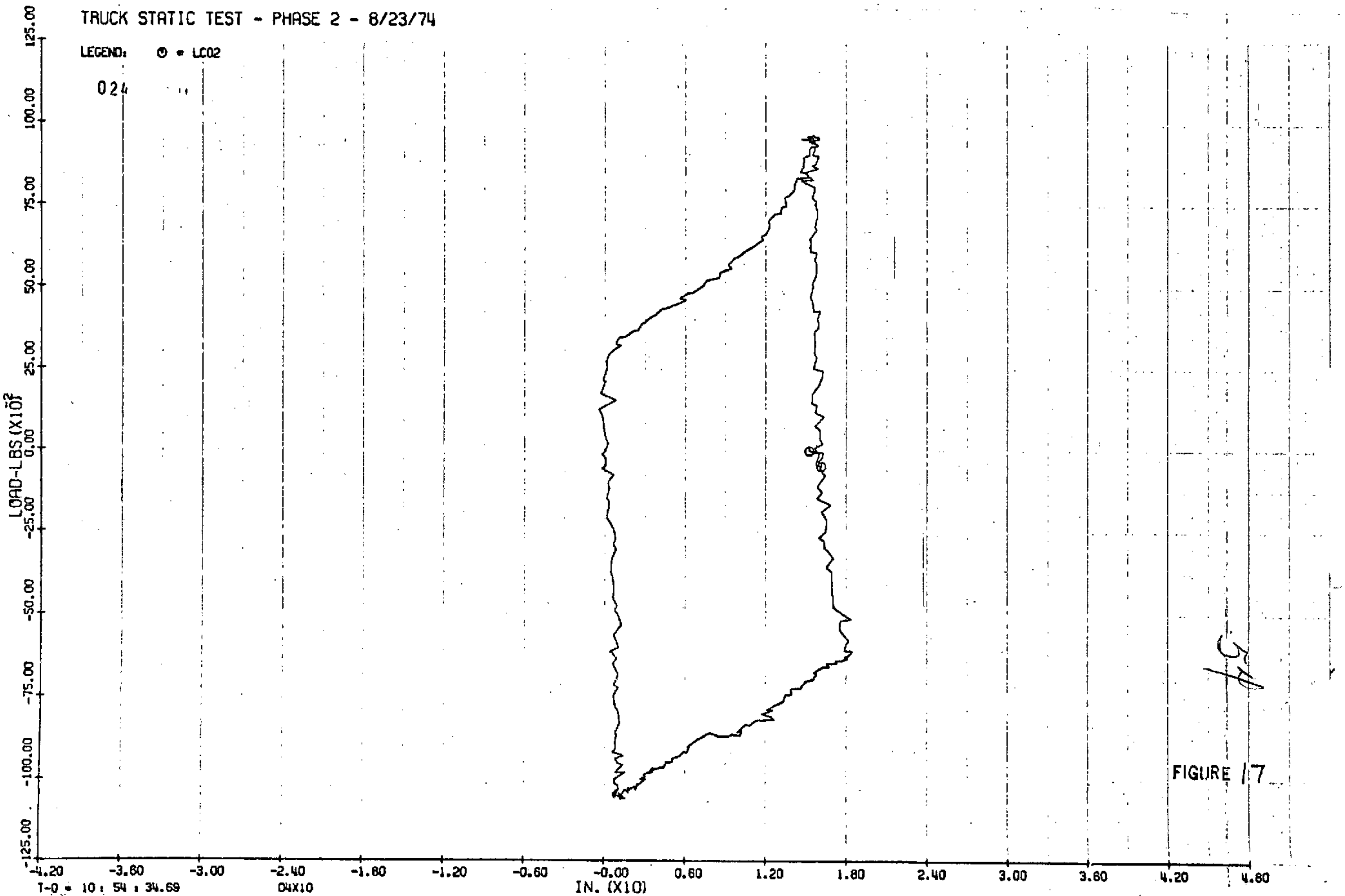
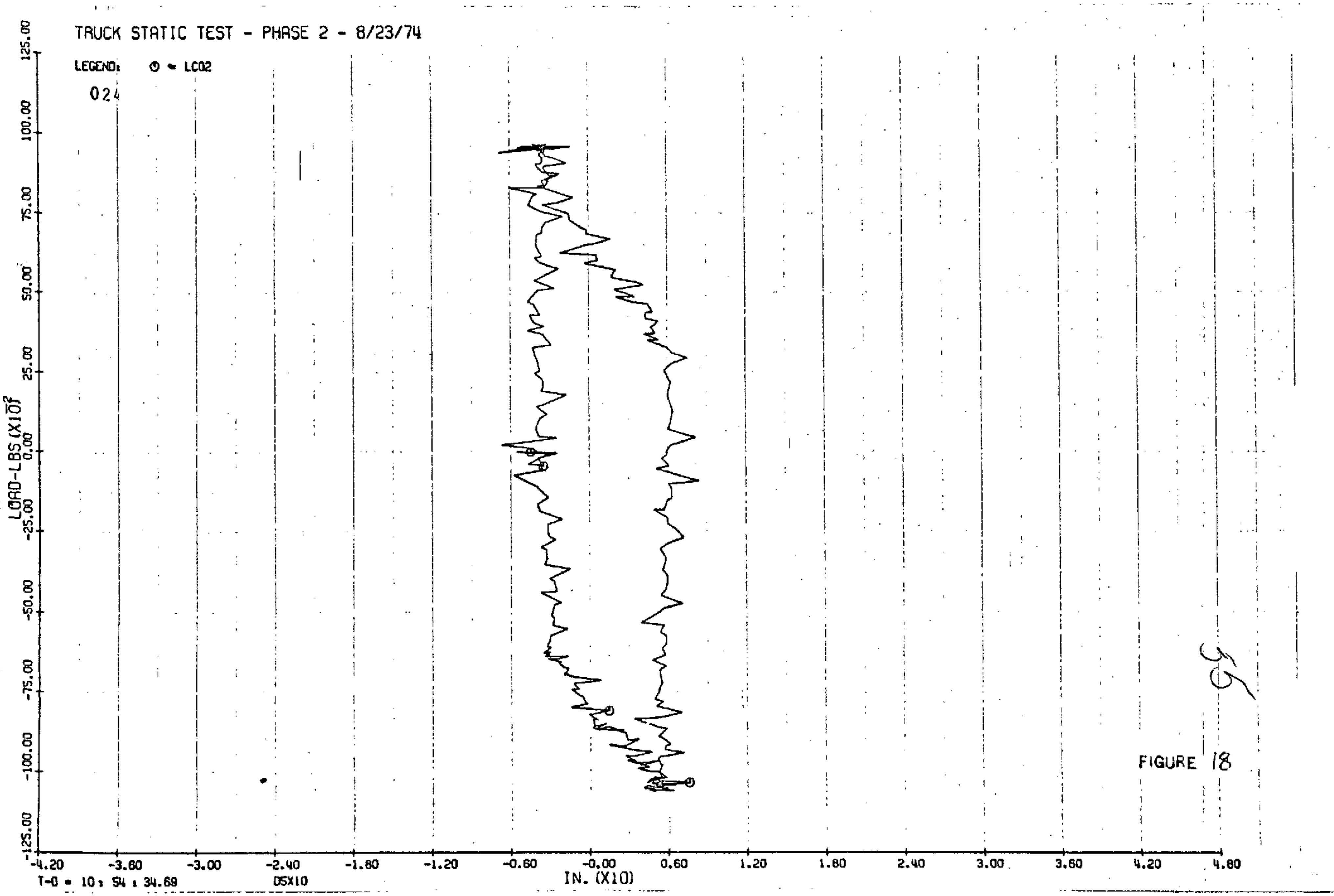

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
024
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 54 : 34.69
04X10

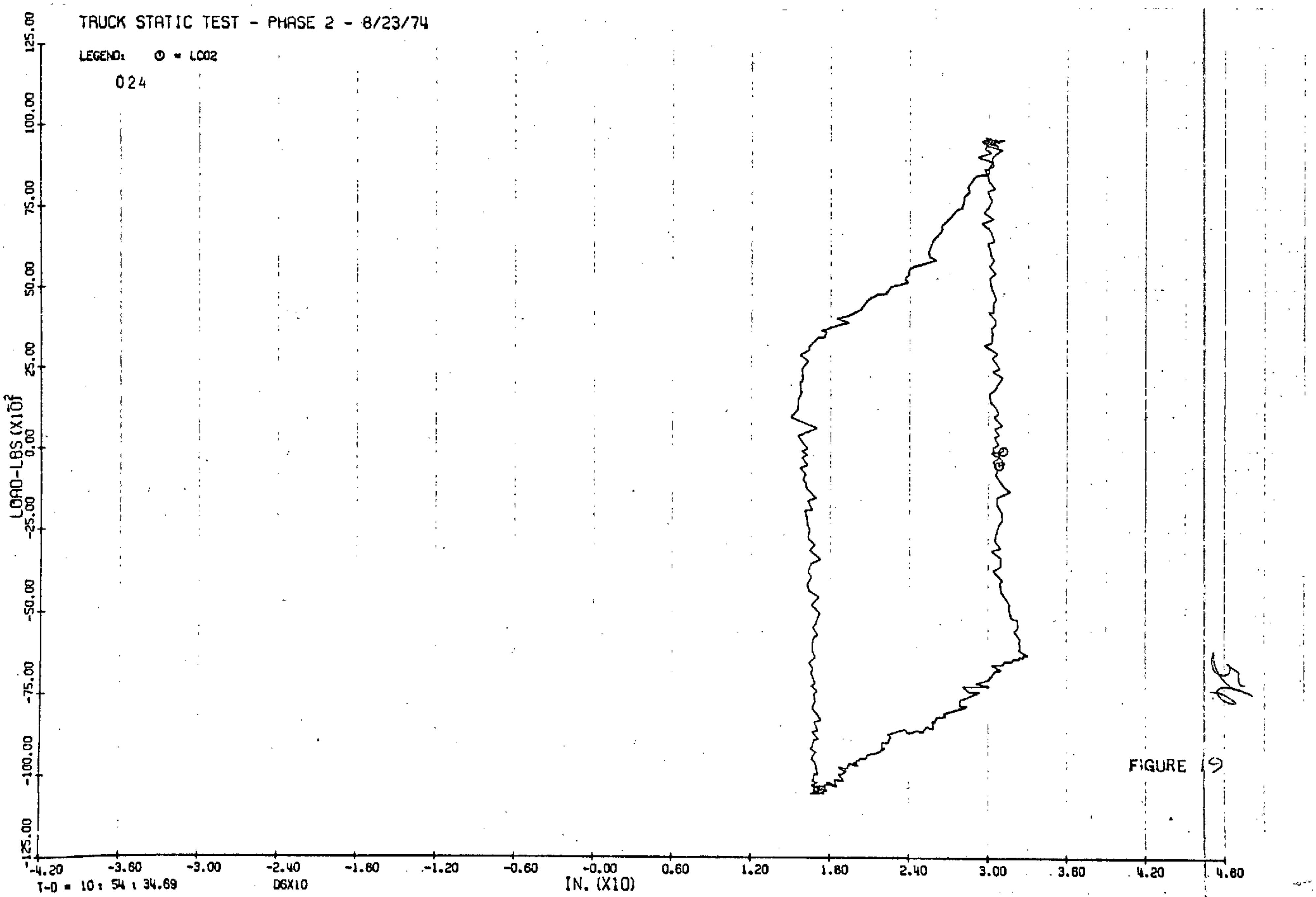
FIGURE 17



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
024
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 54 : 34.69
DSX10

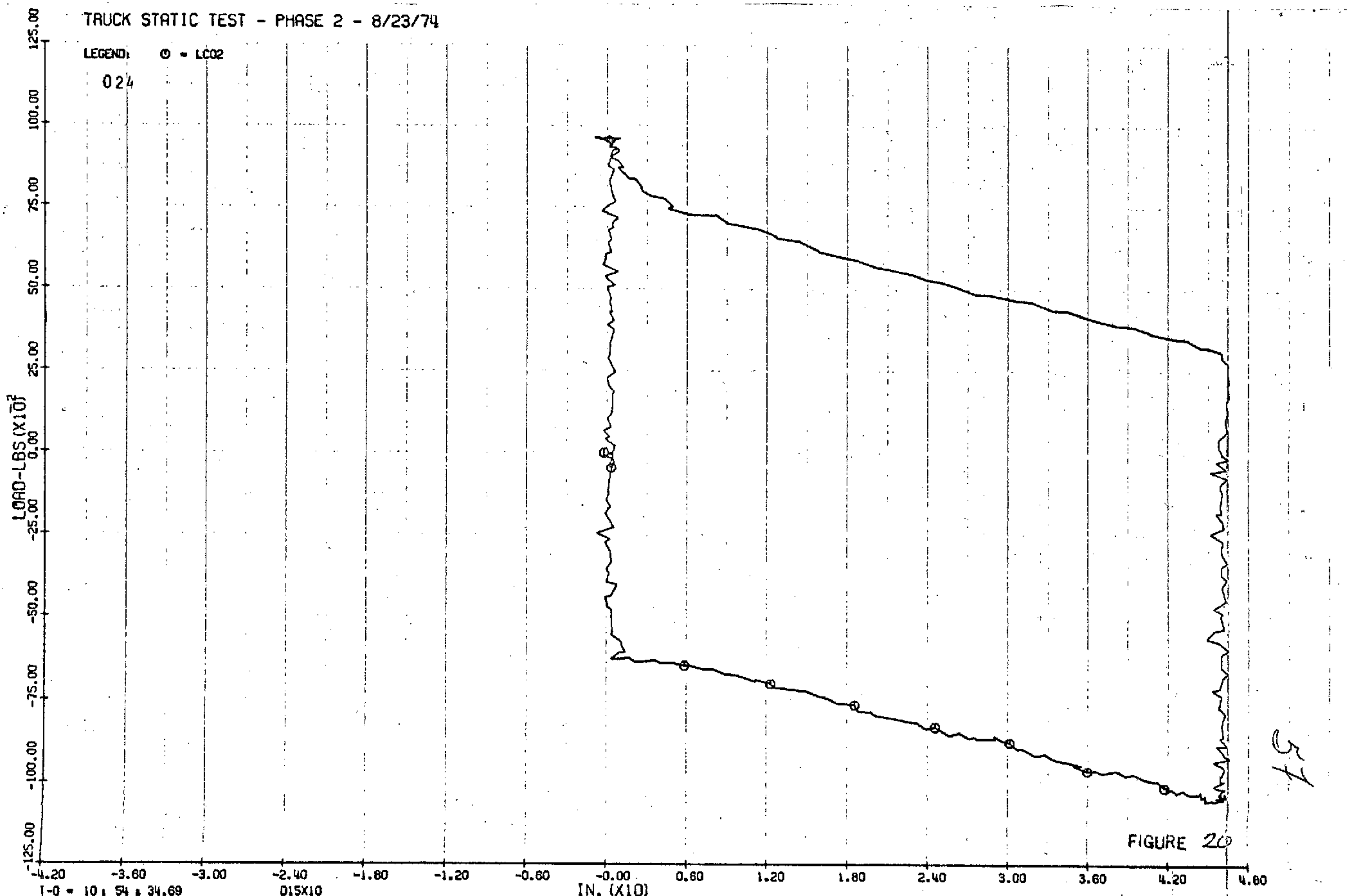
FIGURE 18

55



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
024
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
T-0 = 10 : 54 : 34.69
DGX10
IN. (X10)

FIGURE 9



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
024
LOAD-LBS (X10^{2})
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 54 : 34.69
D15X10

FIGURE 20

57

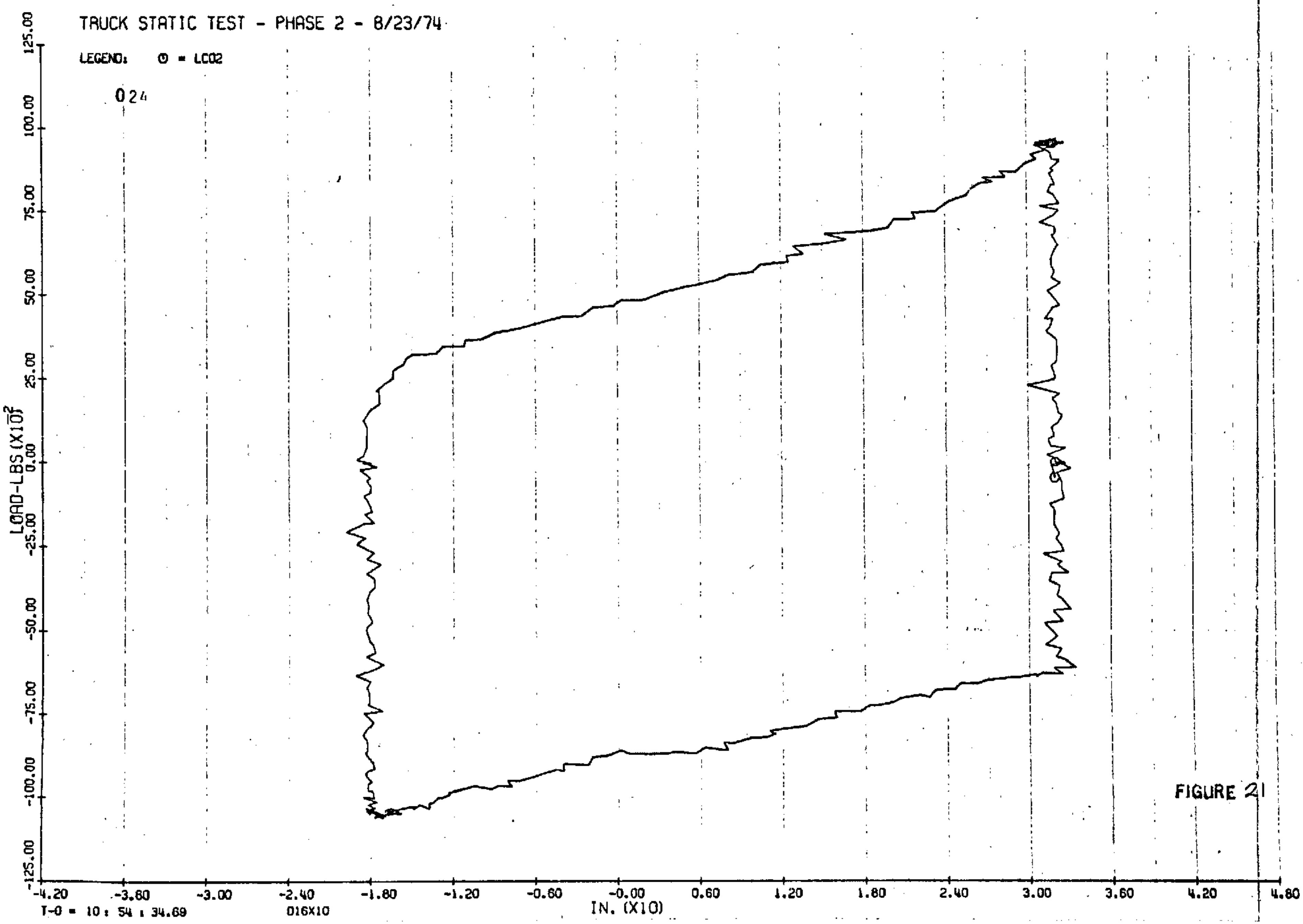

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
024
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 54 : 34.69
016X10

FIGURE 21

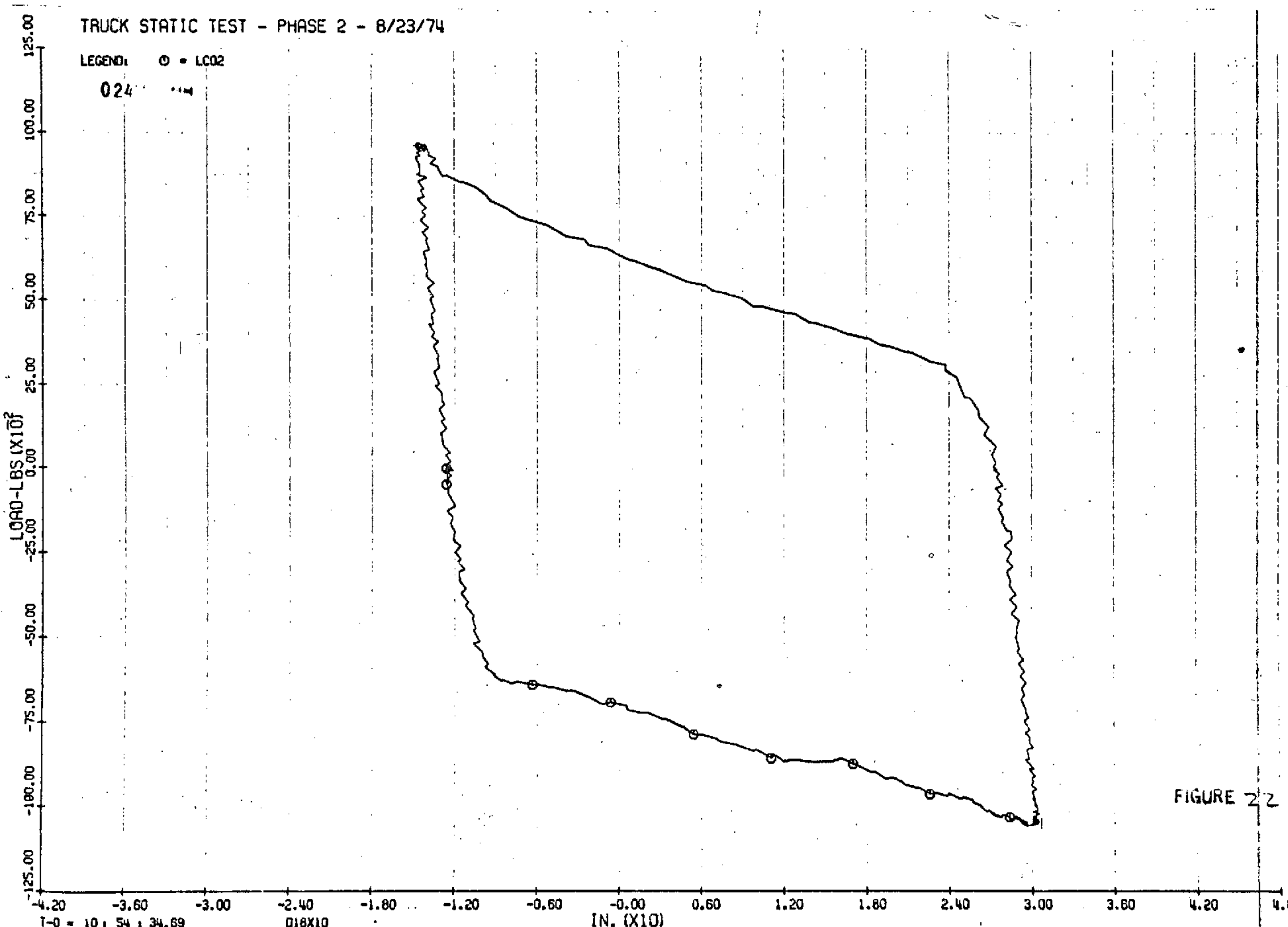
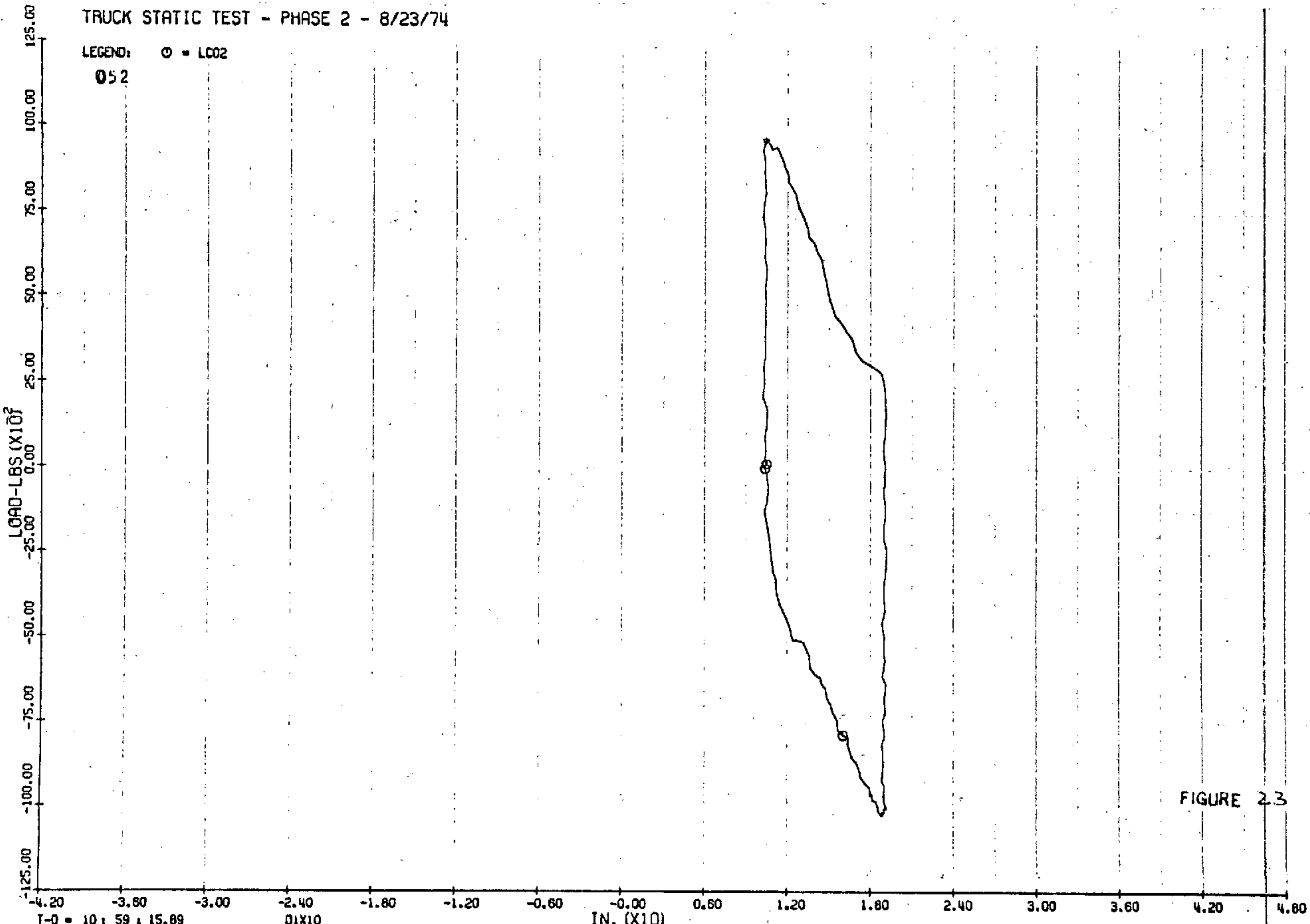


FIGURE 22

TR-131S-74



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
052
LOAD-LBS (X10^2)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
T-0 = 10 : 59 : 15.89
DIX10
IN. (X10)

FIGURE 2.3

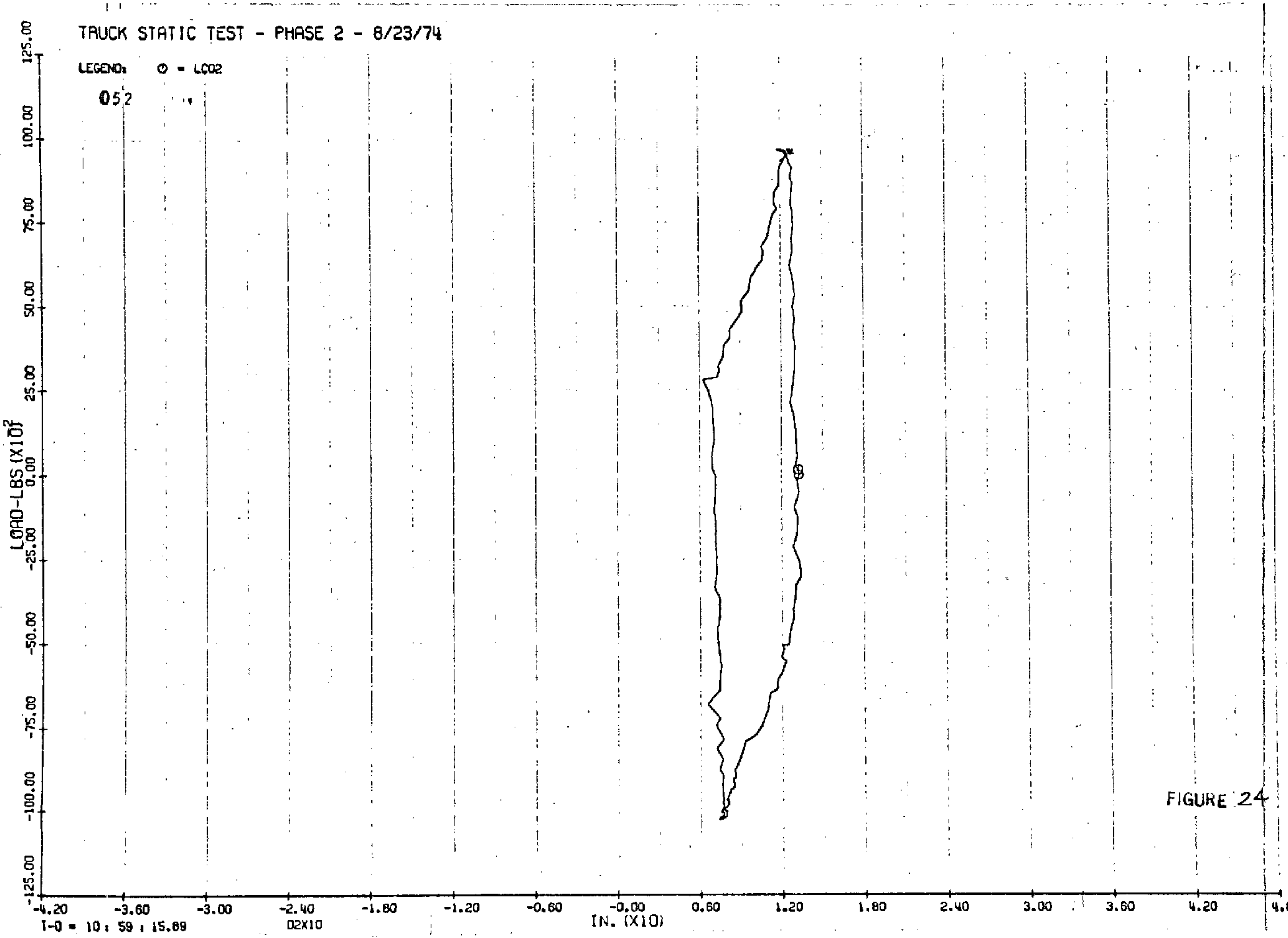


FIGURE 24

TR-131S-74

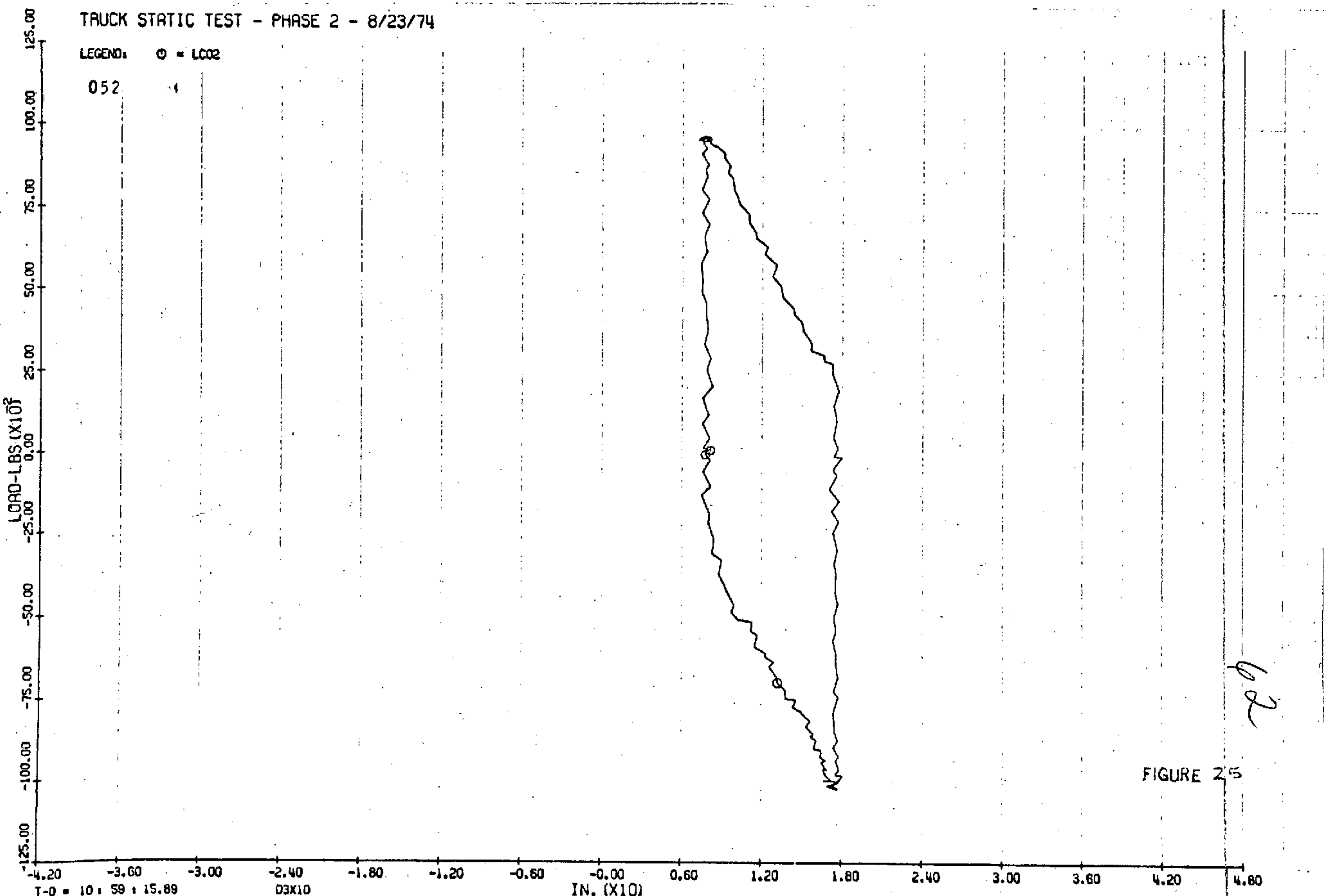

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
052
LOAD-LBS (X10^2)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 59 : 15.89
03X10

FIGURE 25

62

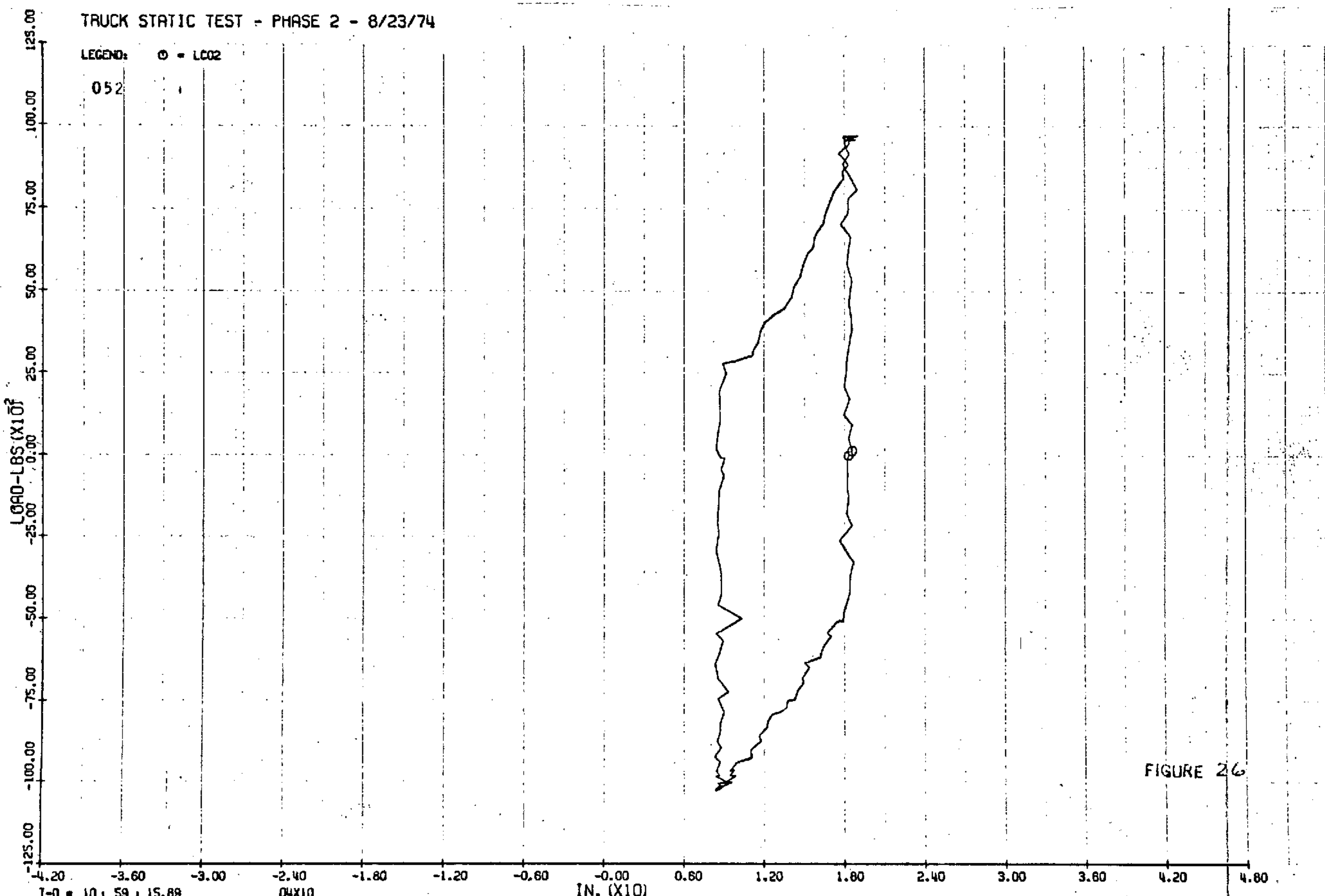

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊕ = LC02
052
LOAD-LBS (X10²)
IN. (X10)
T-0 = 10 : 59 : 15.89
04X10

FIGURE 26

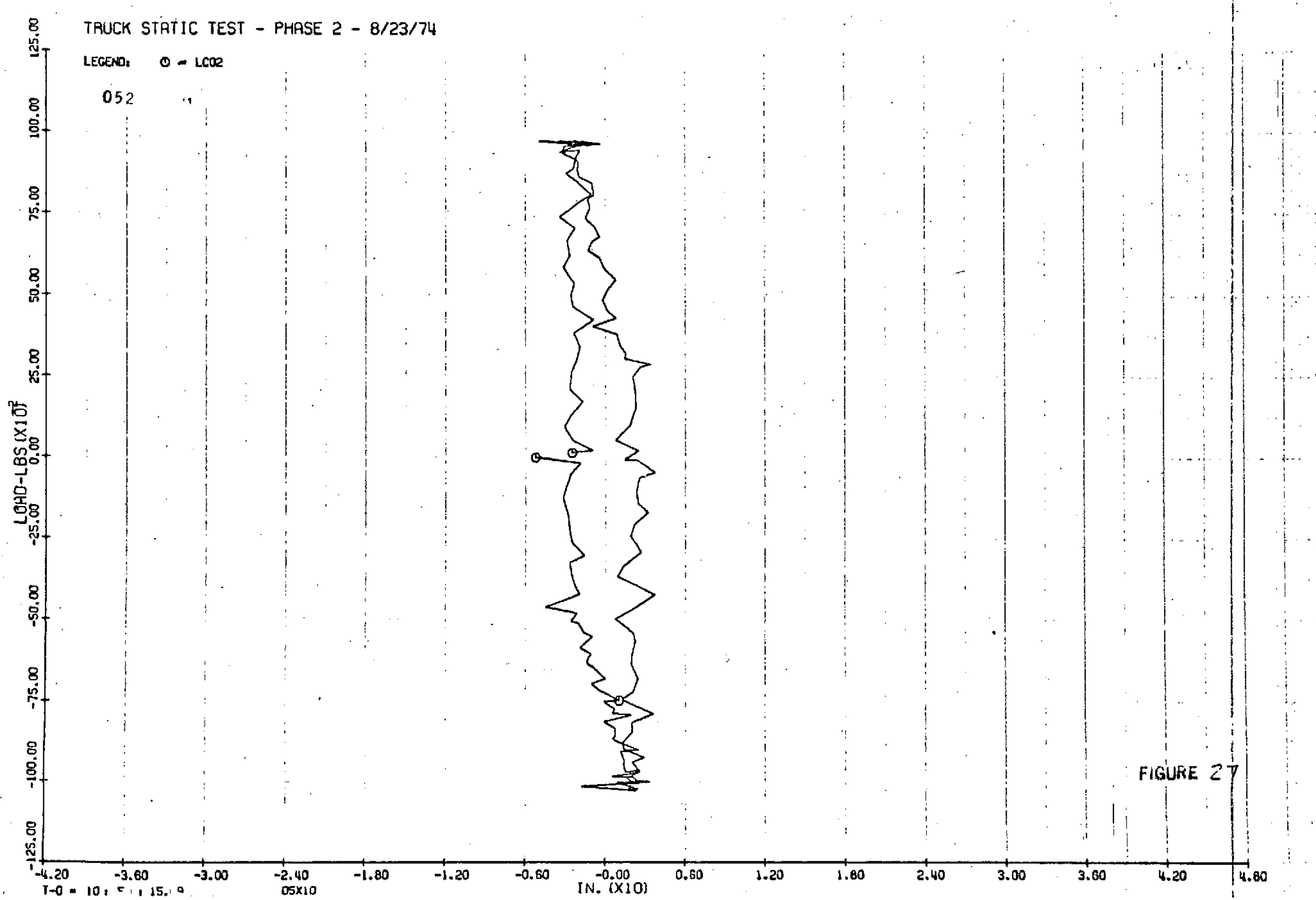


FIGURE 27

TR-131S-74

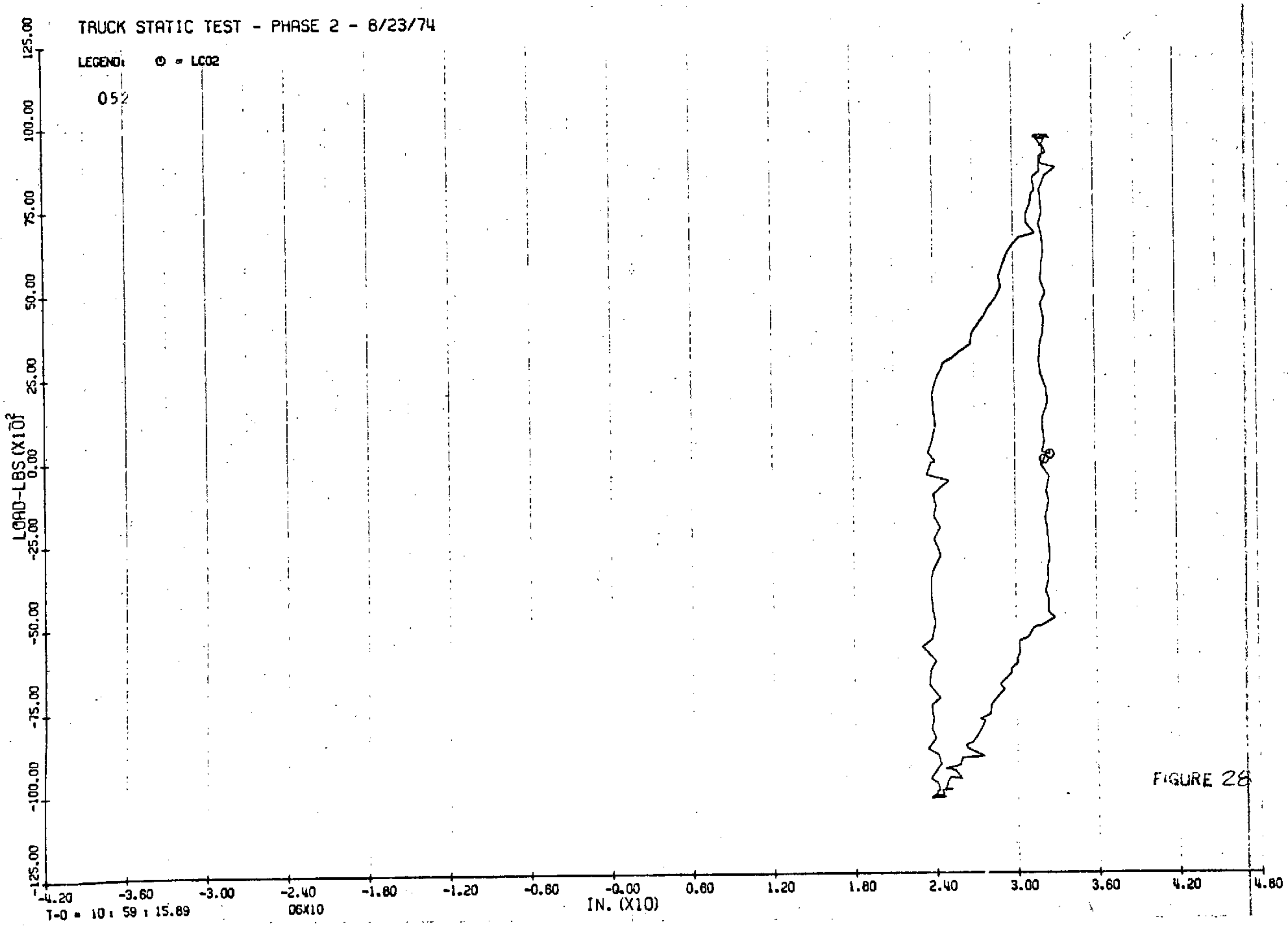
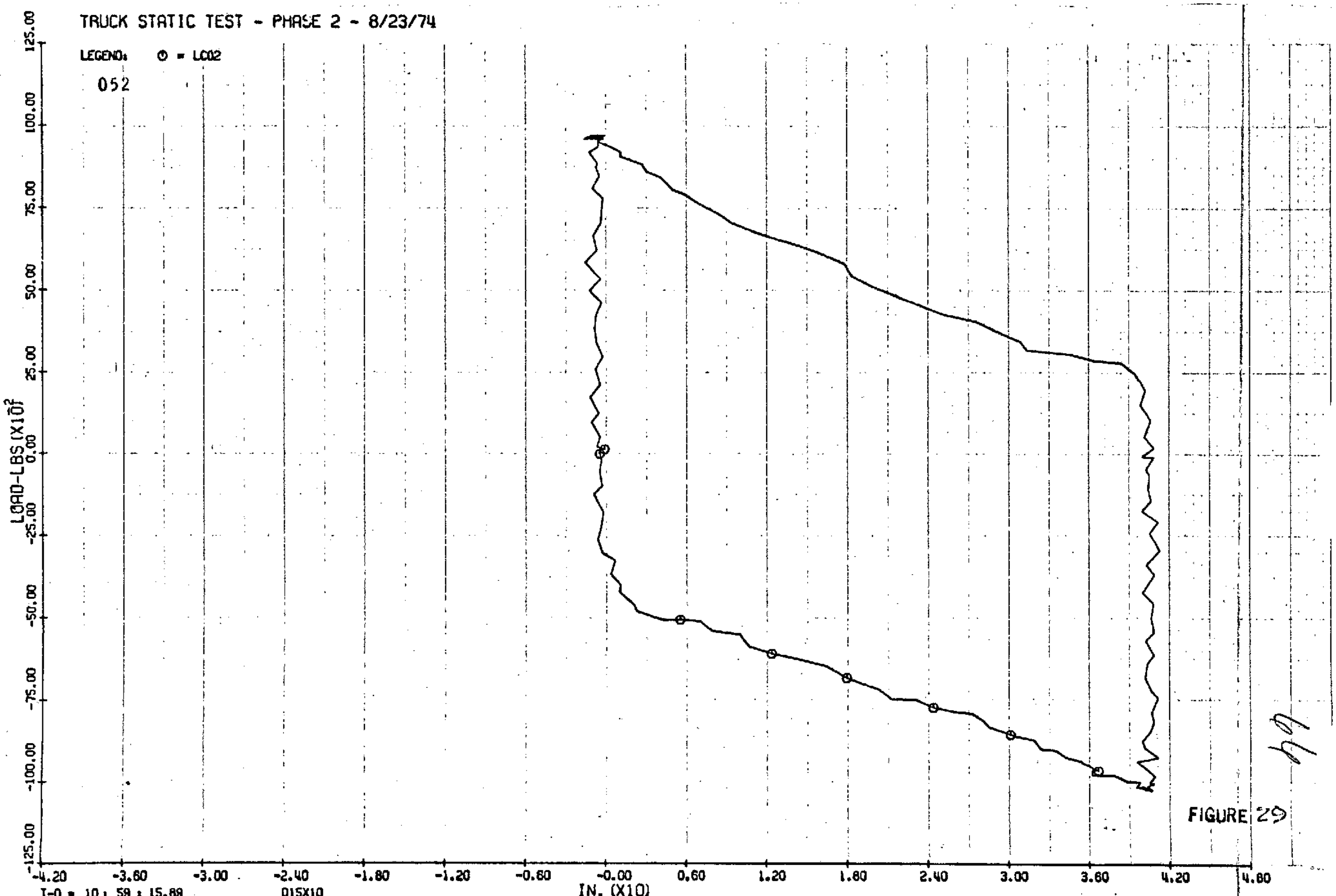


FIGURE 28

TR-131S-74



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
052
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 59 : 15.89
DISX10

FIGURE 29

64

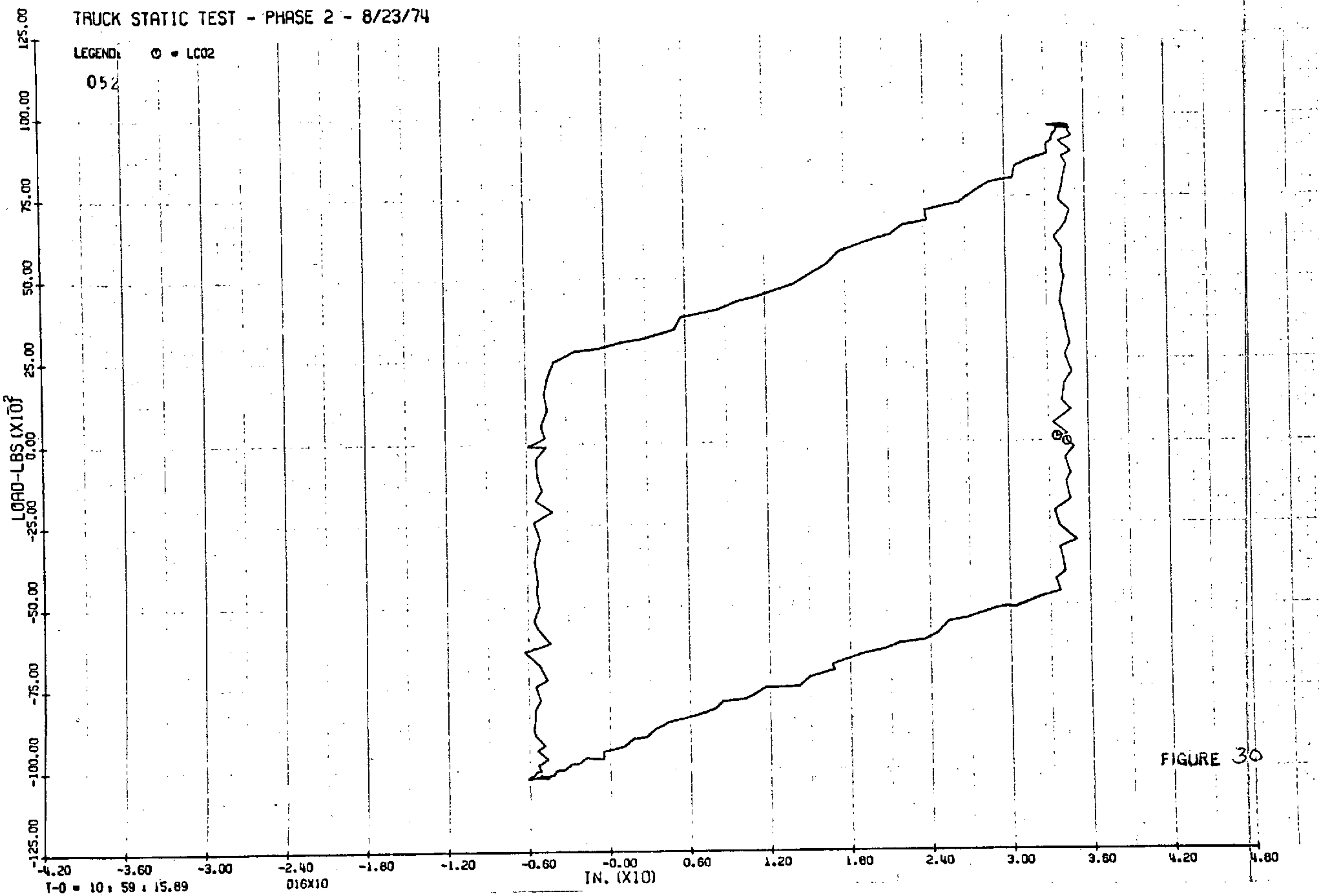


FIGURE 30

TR-131S-74

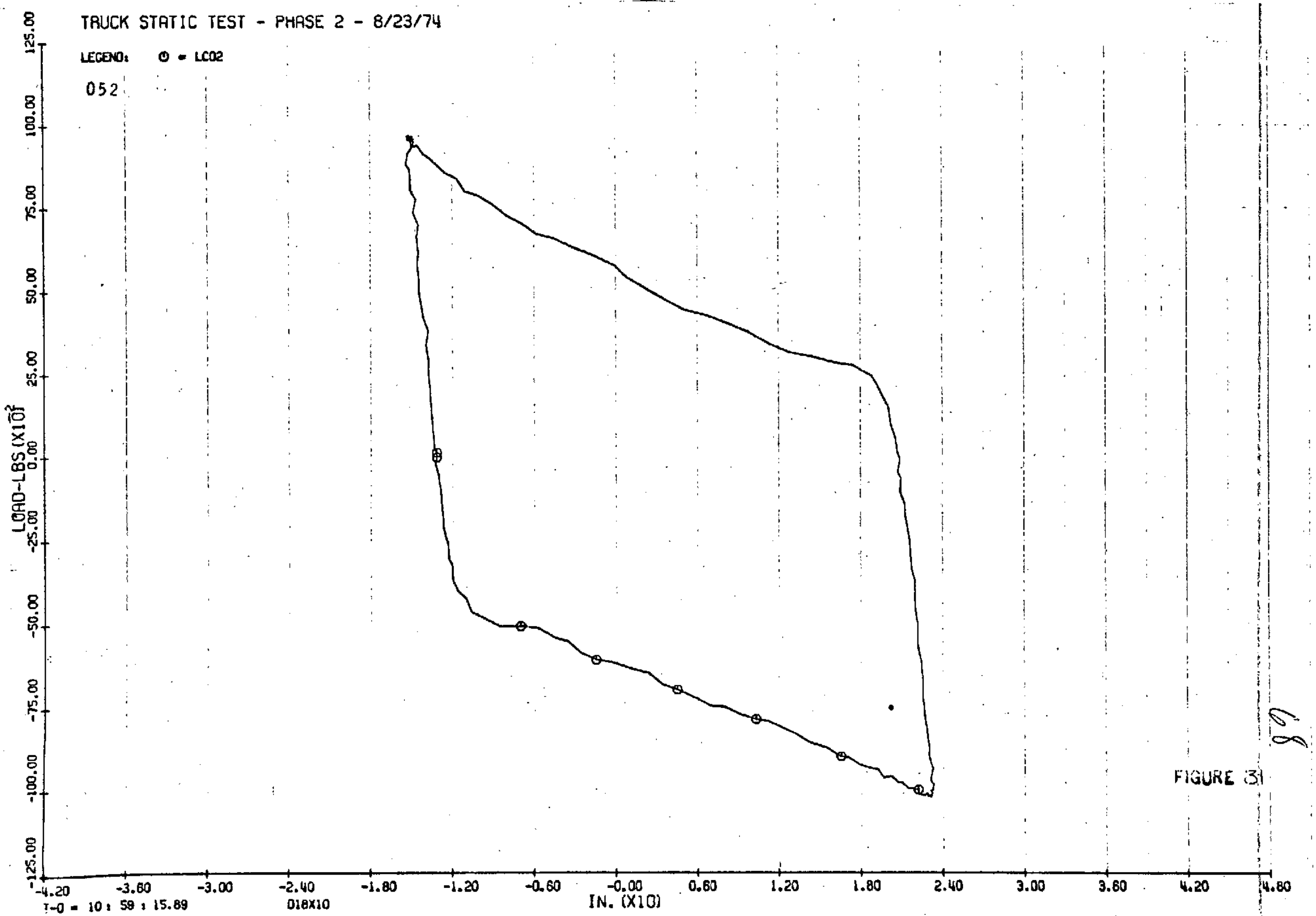

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊕ = LC02
052
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 10 : 59 : 15.89
D18X10

FIGURE 3

68

TRUCK STATIC TEST - PHASE 2 - 8/23/74

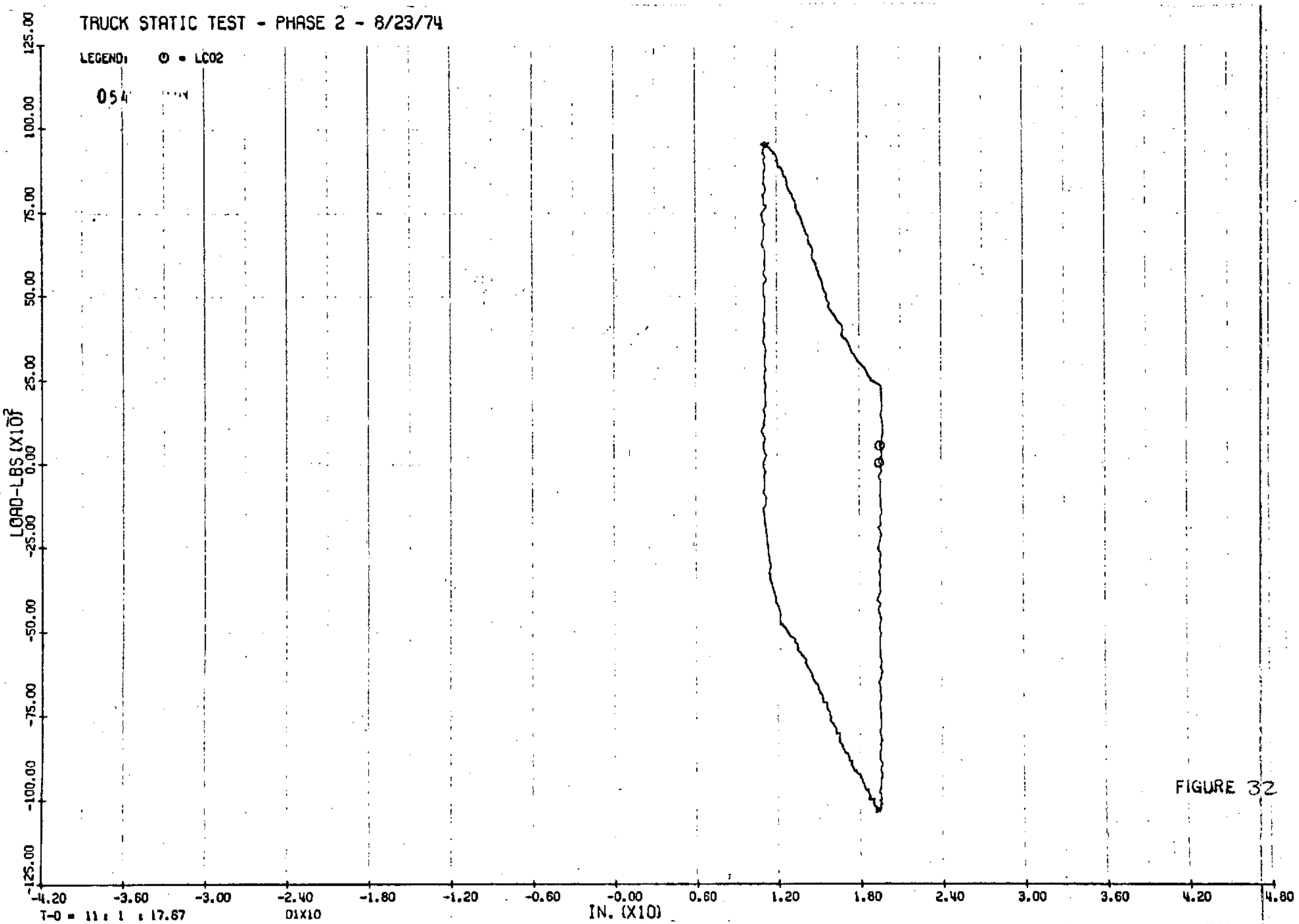
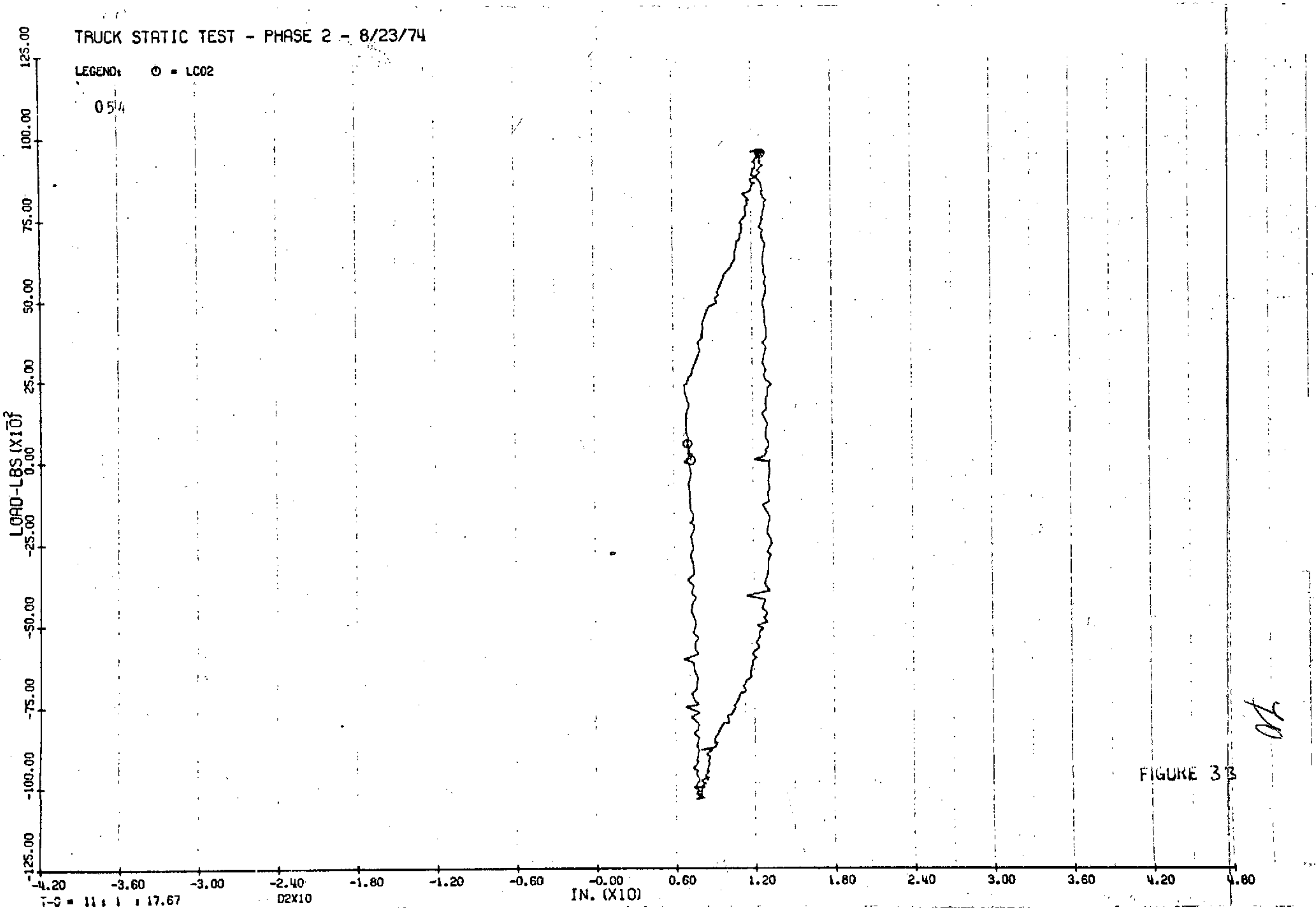


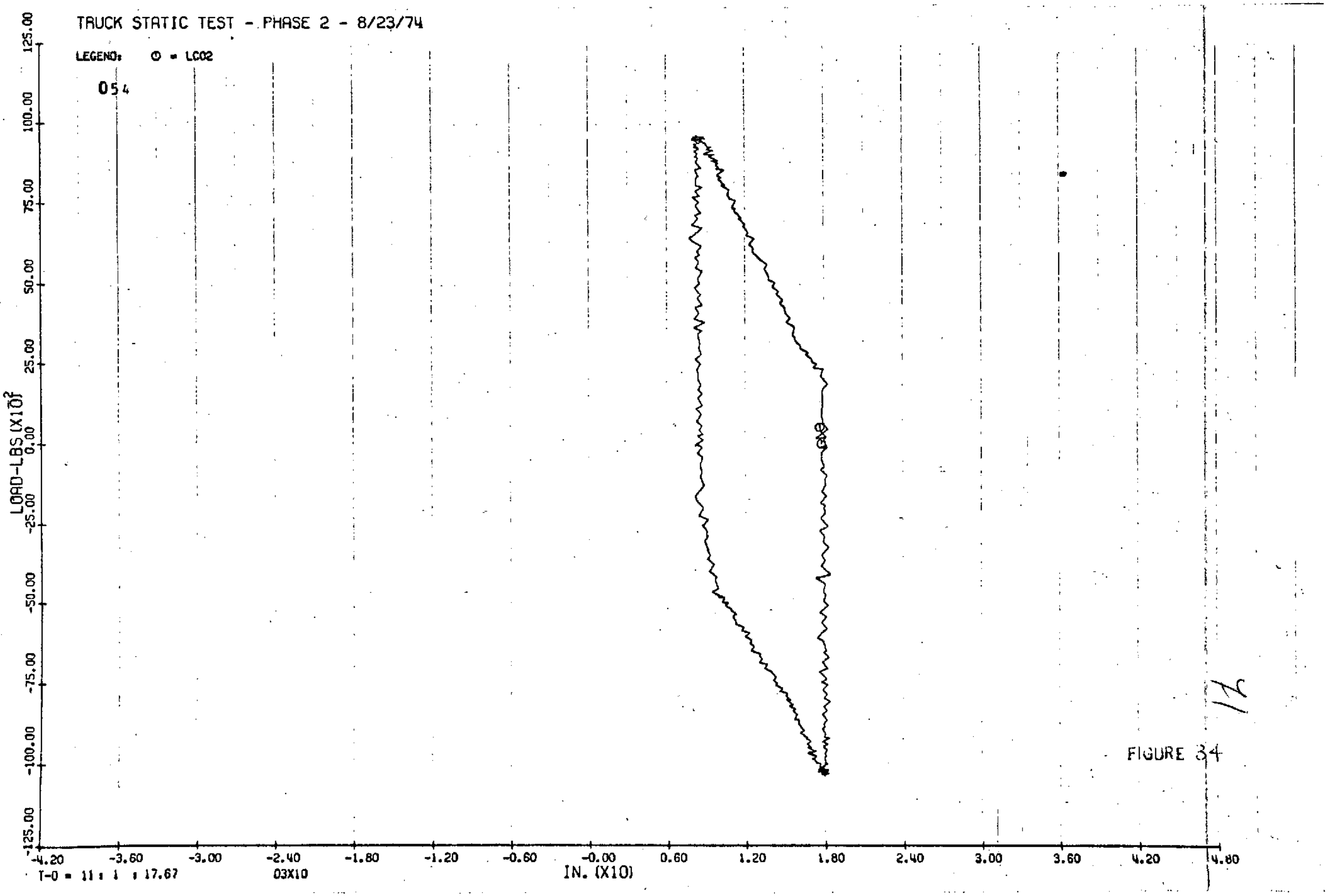
FIGURE 32

TR-131S-74



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
054
LOAD-LBS (X10^{2})
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
D2X10
T-0 = 11 : 1 : 17.67

FIGURE 33


TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
054
LOAD-LBS (X10)^2
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 11 : 1 : 17.67
03X10
17
FIGURE 34

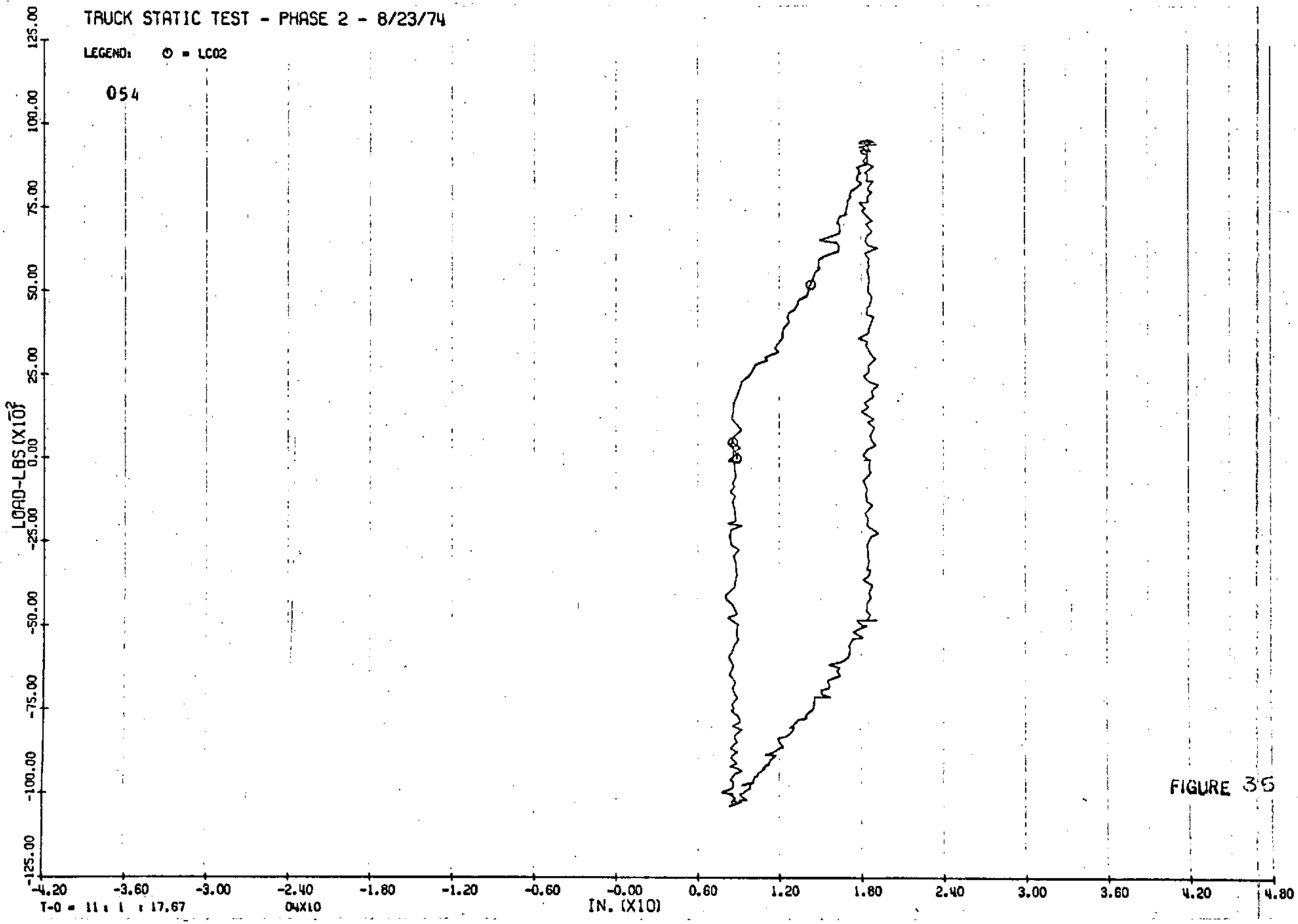


FIGURE 35

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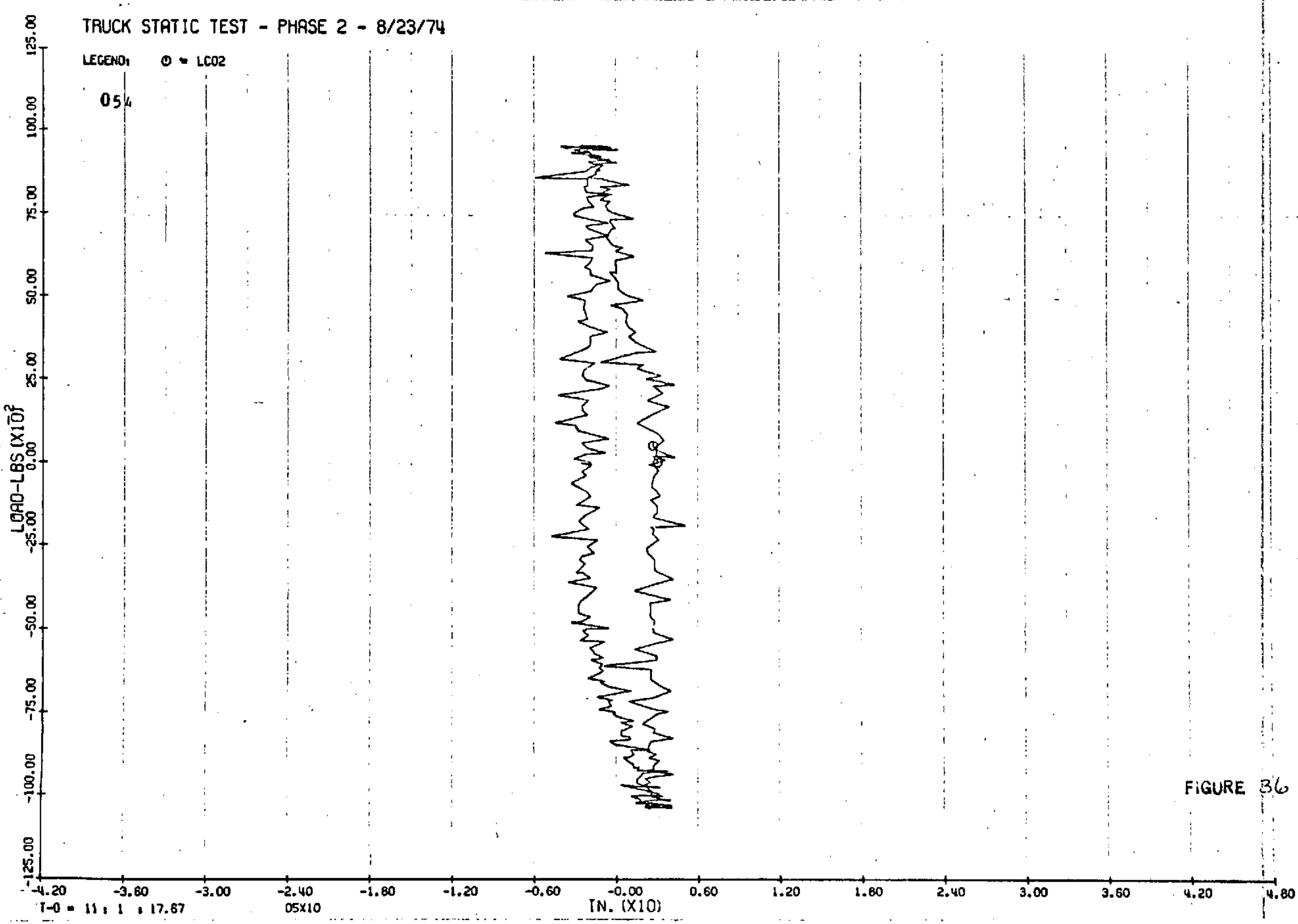

FIGURE 36

TR-131S-74

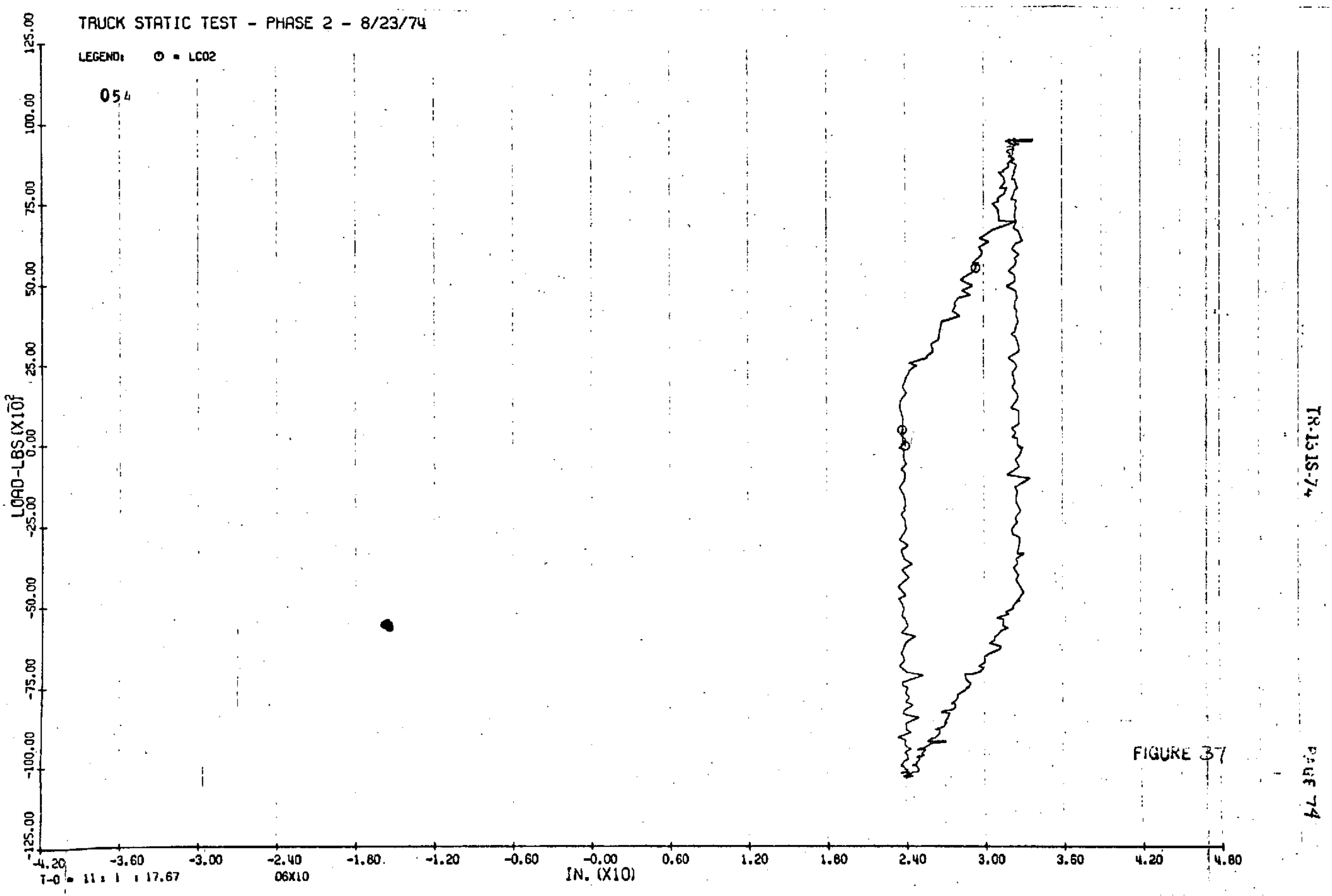

FIGURE 37

TR-1515-74

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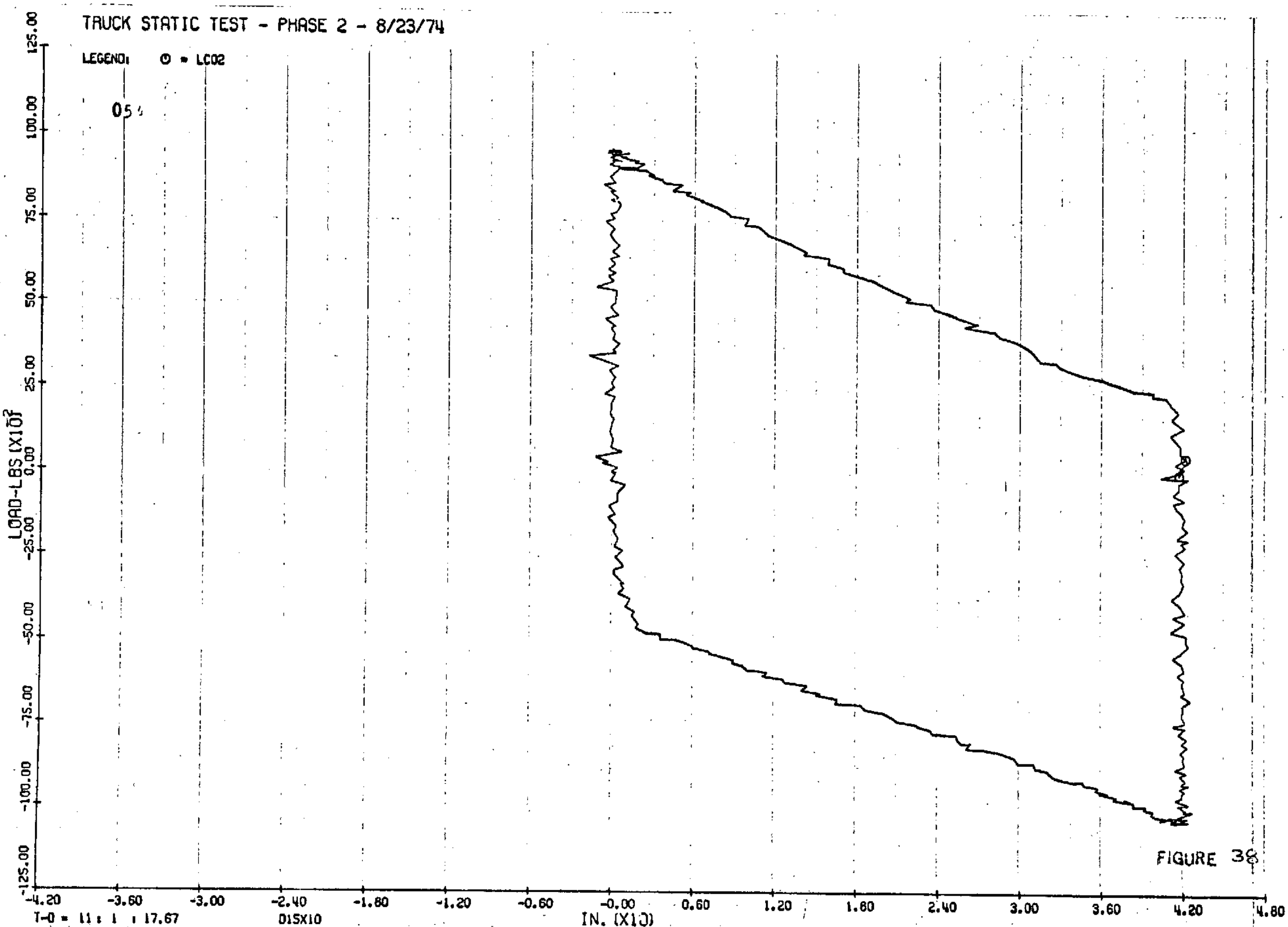

FIGURE 38

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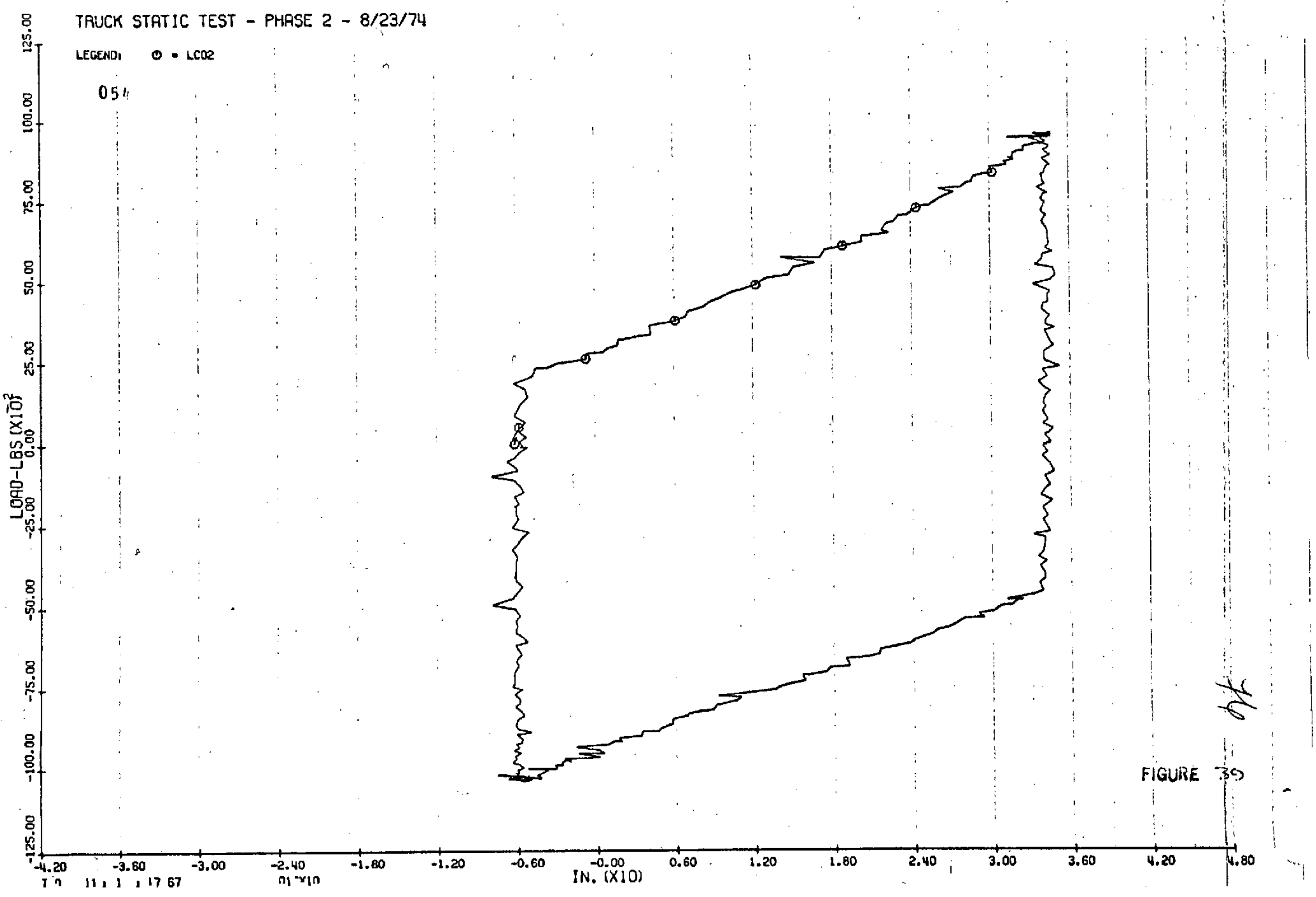
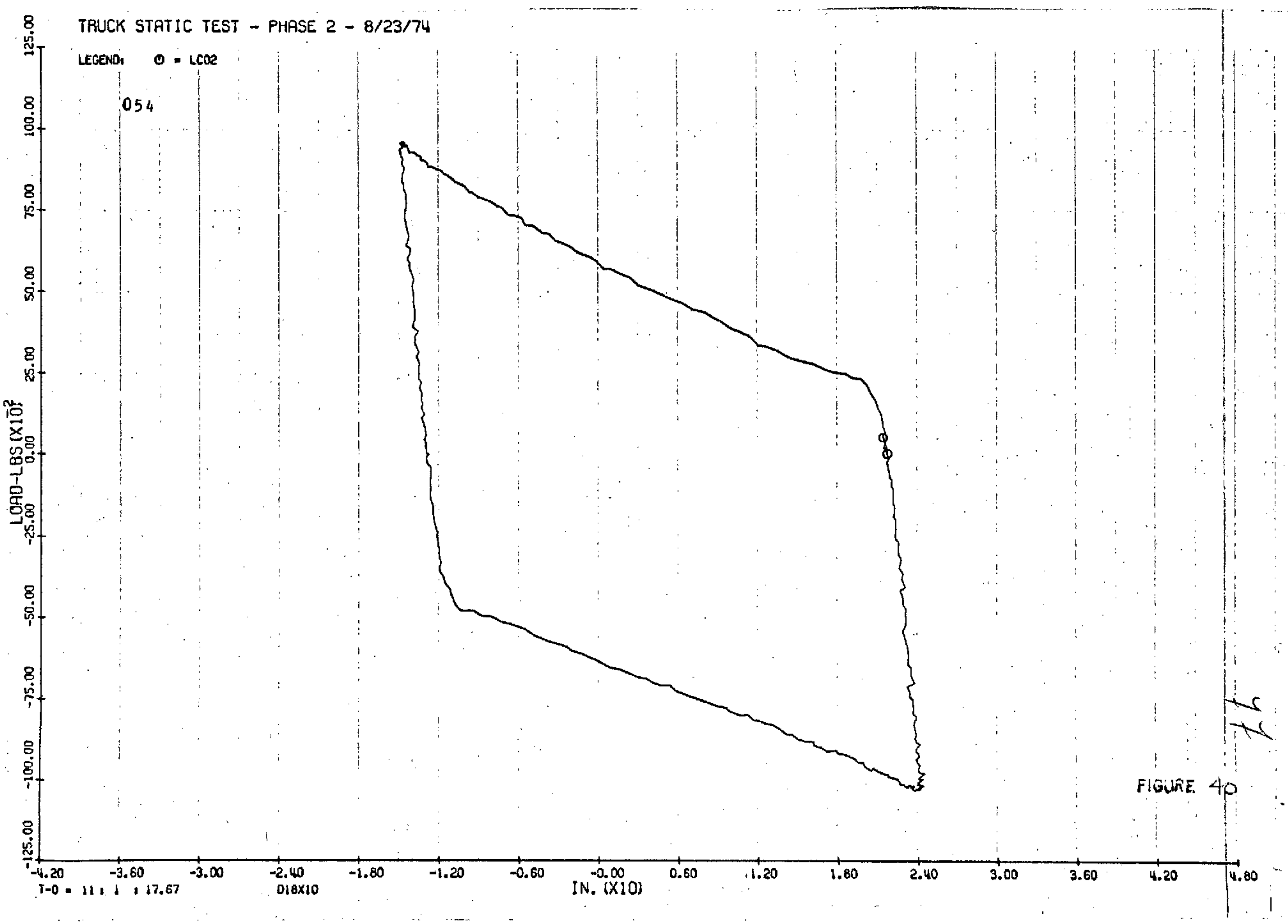

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
054
LOAD-LBS (X10^2)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)

FIGURE 39



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
054
LOAD-LBS (X10^2)
IN. (X10)
T-0 = 11 : 1 : 17.67
D18X10

FIGURE 40

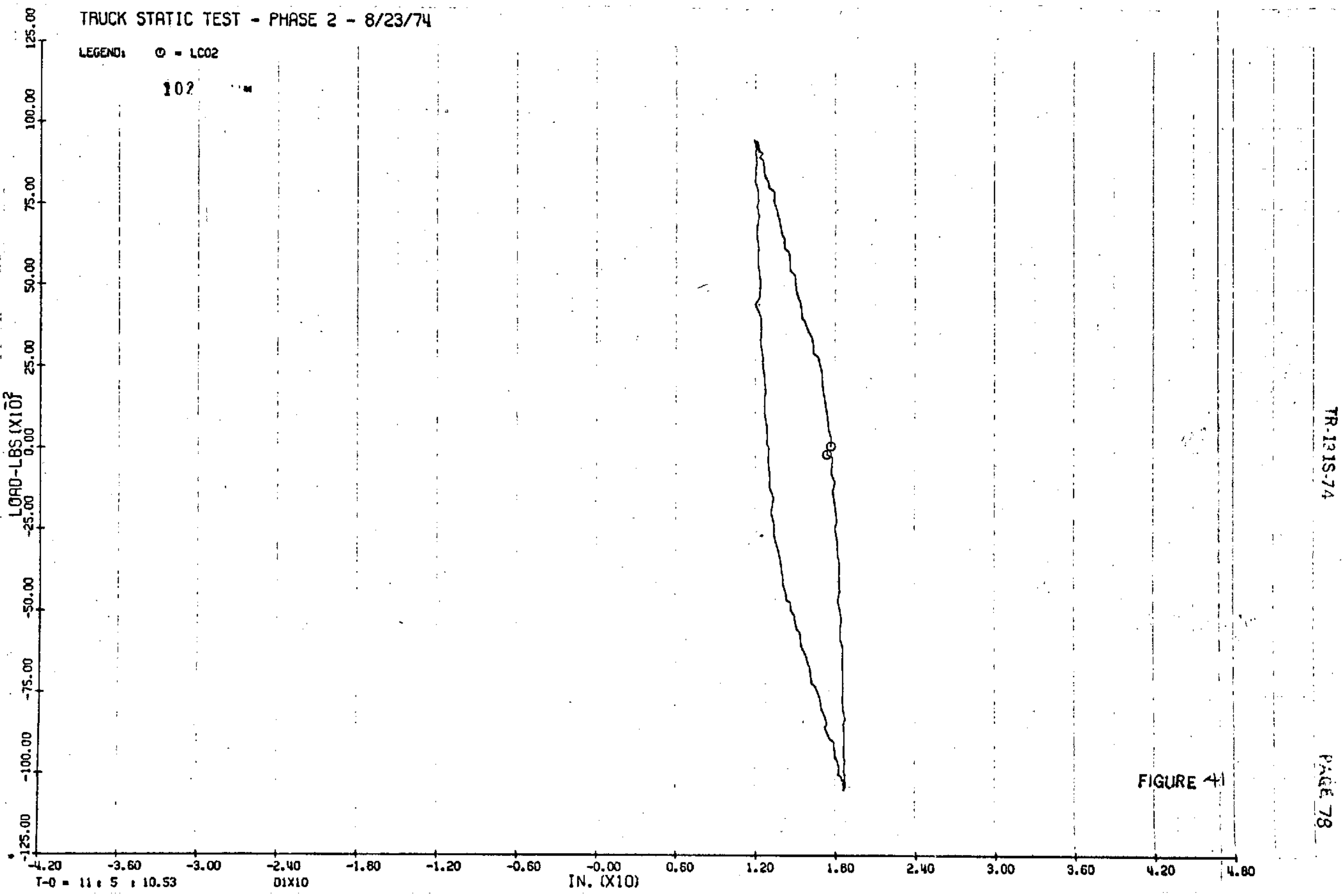
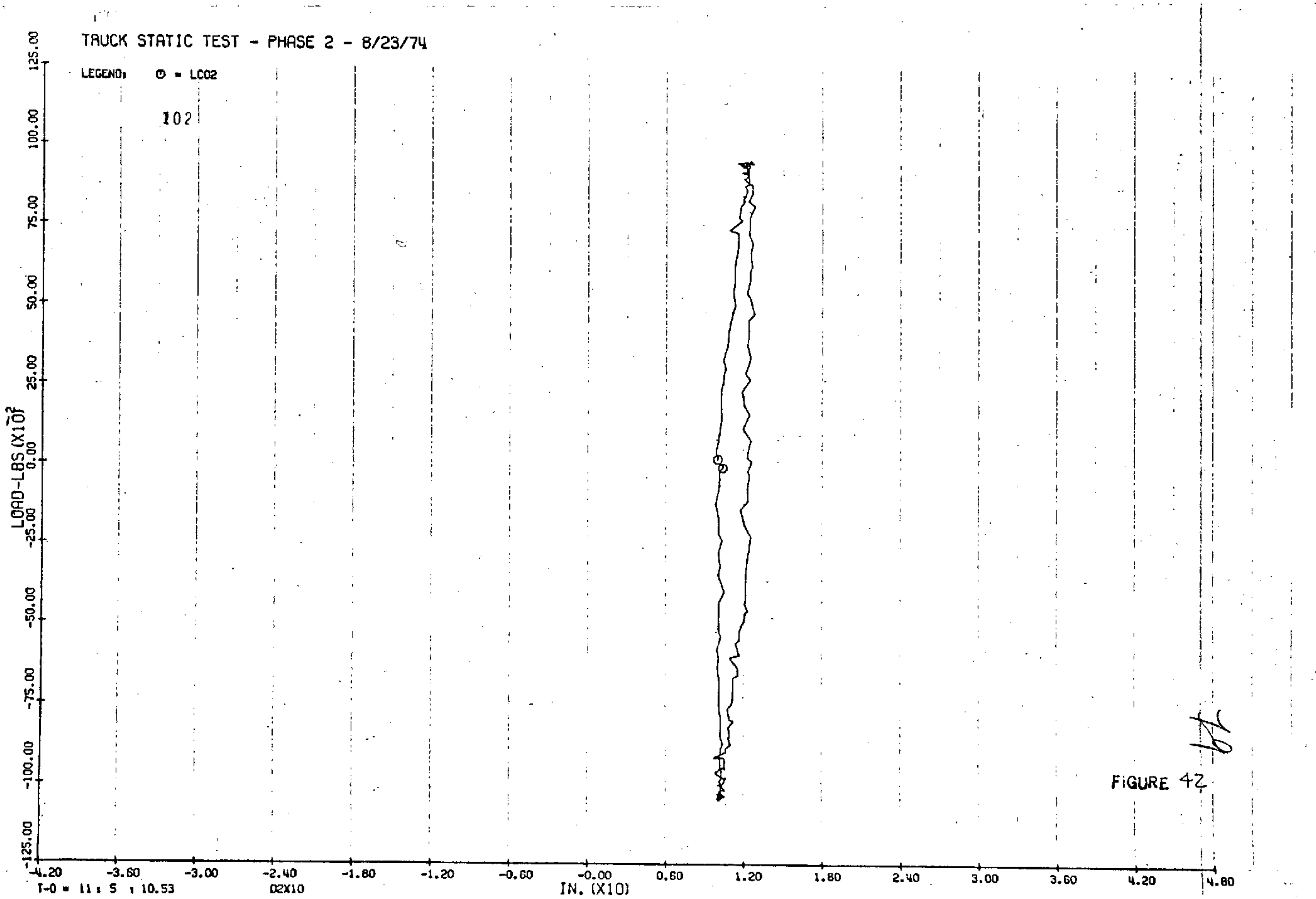


FIGURE 41

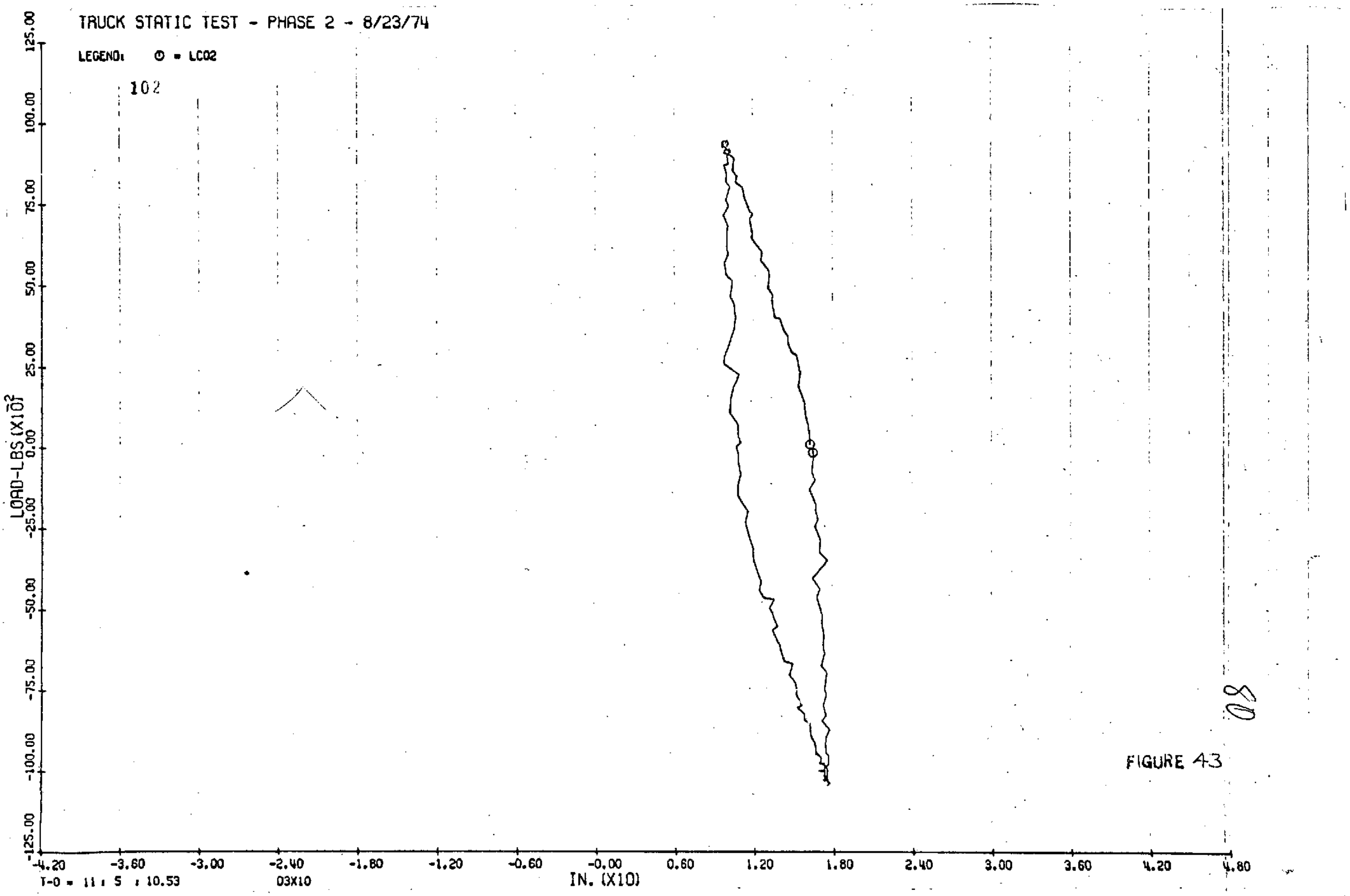
TR-131S-74

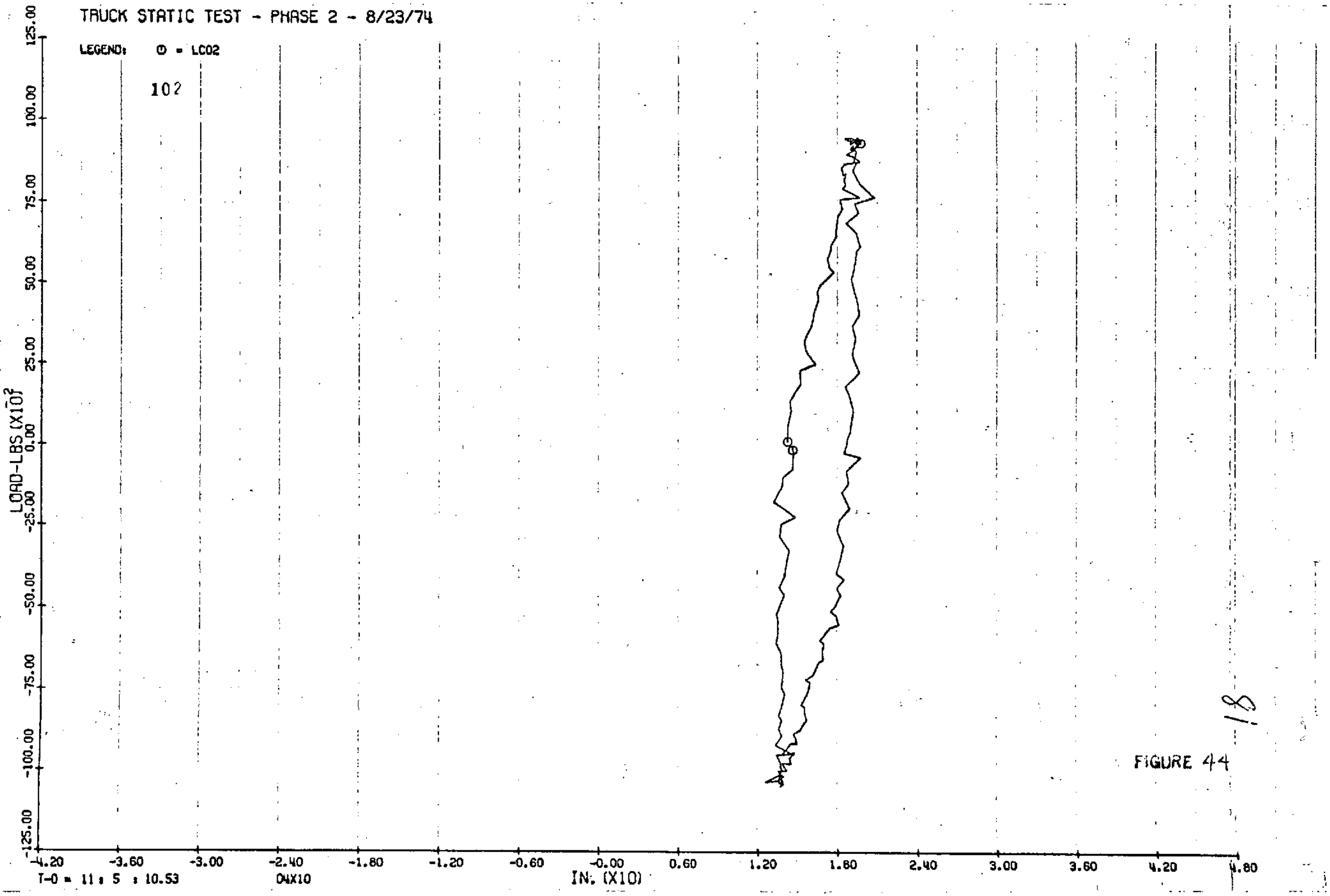


TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
102
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 11 : 5 : 10.53
D2X10

FIGURE 42

67


TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
102
LOAD-LBS (X10)²
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 11 : 5 : 10.53
03X10
80
FIGURE 43


TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
102
LOAD-LBS (X10^2)
IN. (X10)
T-0 = 11 : 5 : 10.53
04X10

18

FIGURE 44

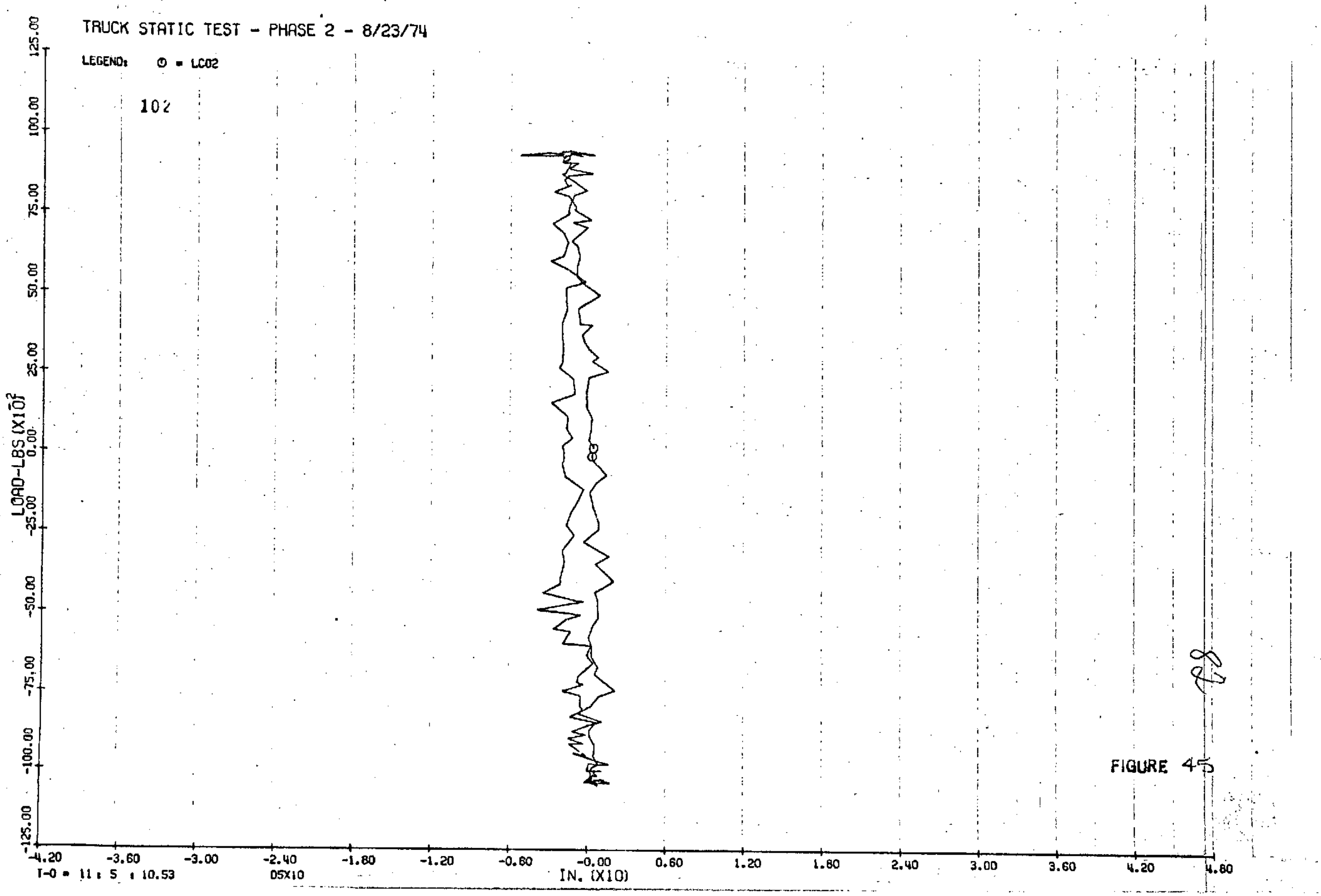
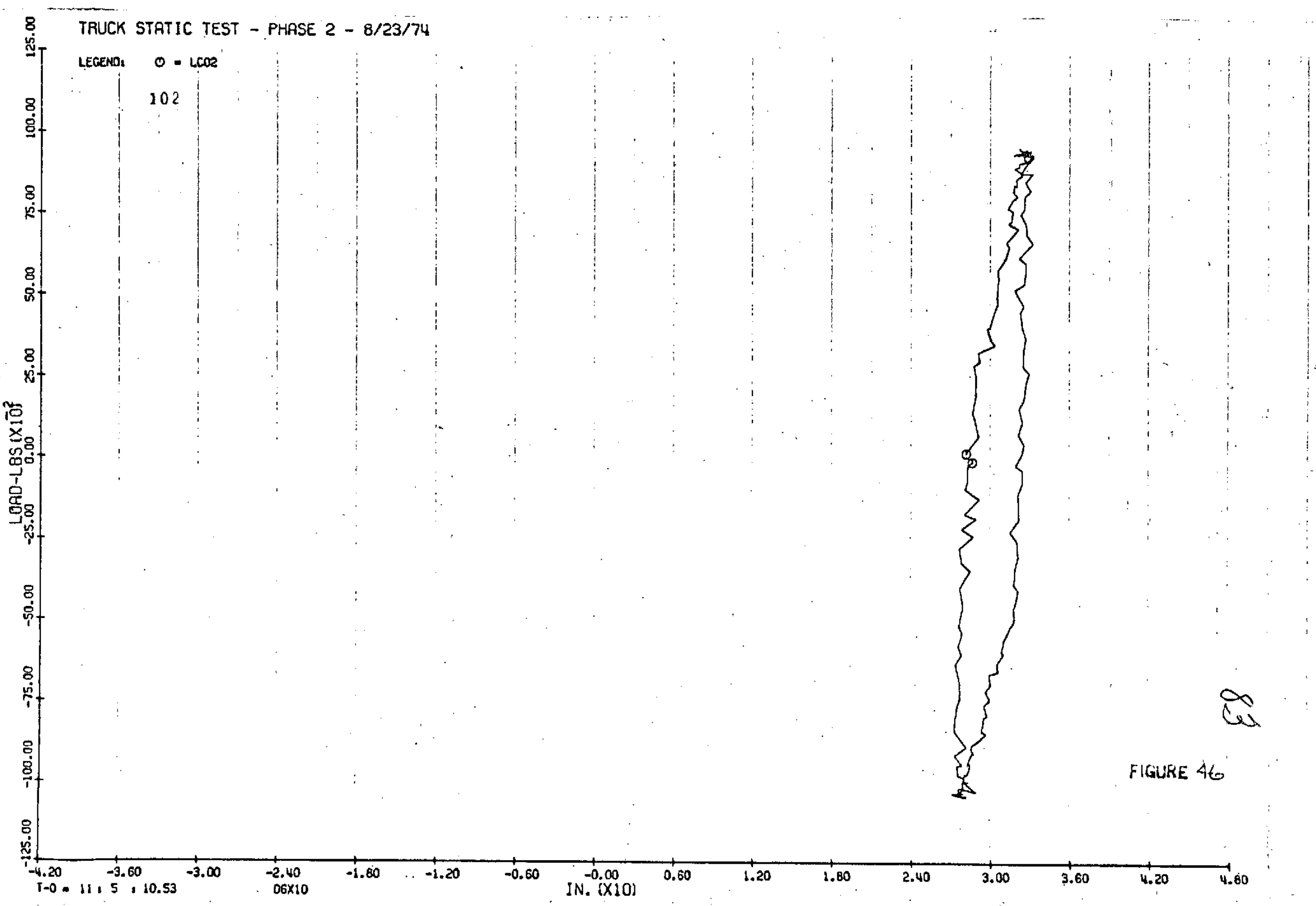
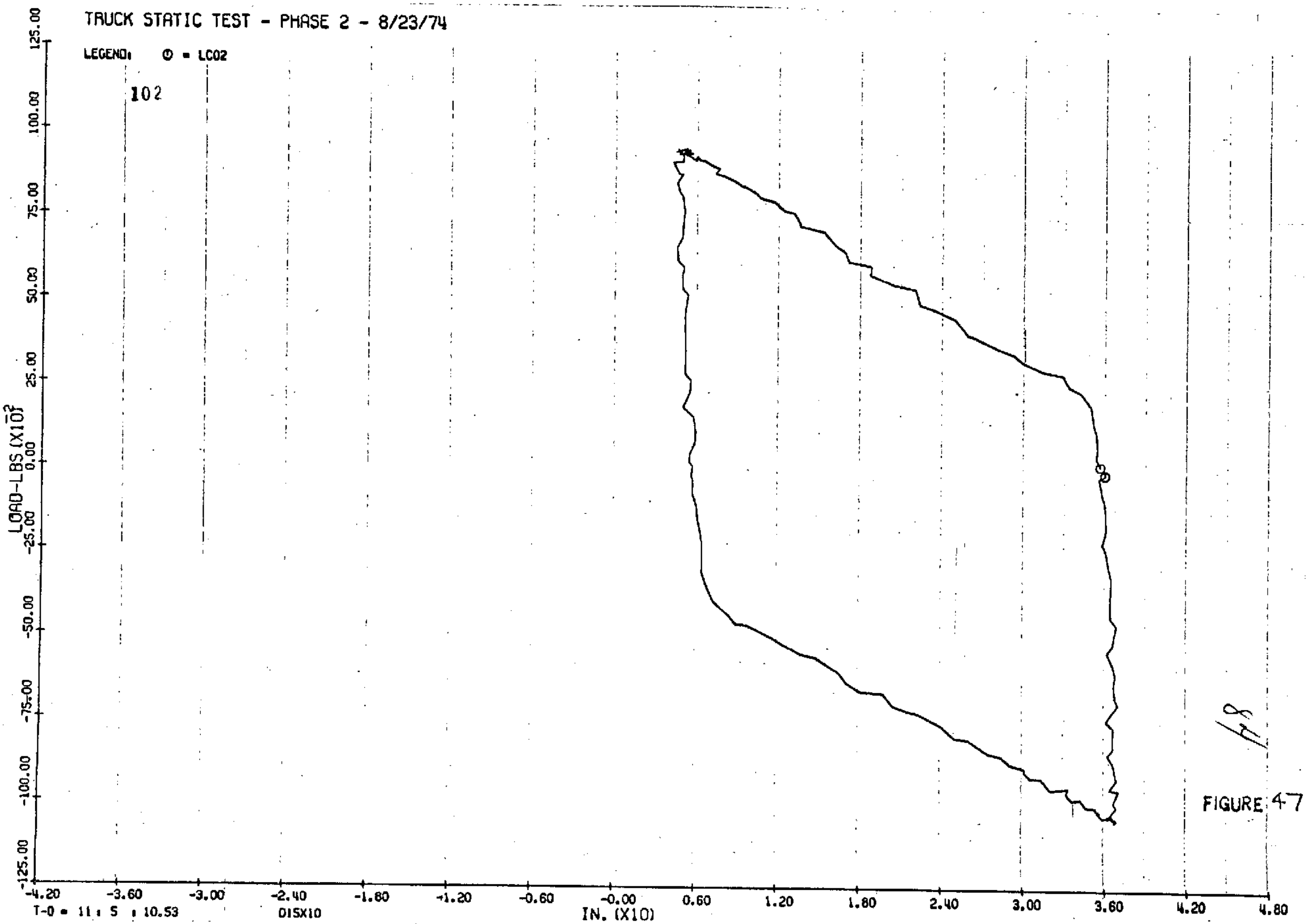

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
102
LOAD-LBS (X10)²
IN. (X10)
T-0 = 11 : 5 : 10.53
05X10
228

FIGURE 45


TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
102
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 11 : 5 : 10.53
06X10
83
FIGURE 46



TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ① = LC02
102
LOAD-LBS (X10²)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 11: 5 : 10.53
DISX10
48

FIGURE 47

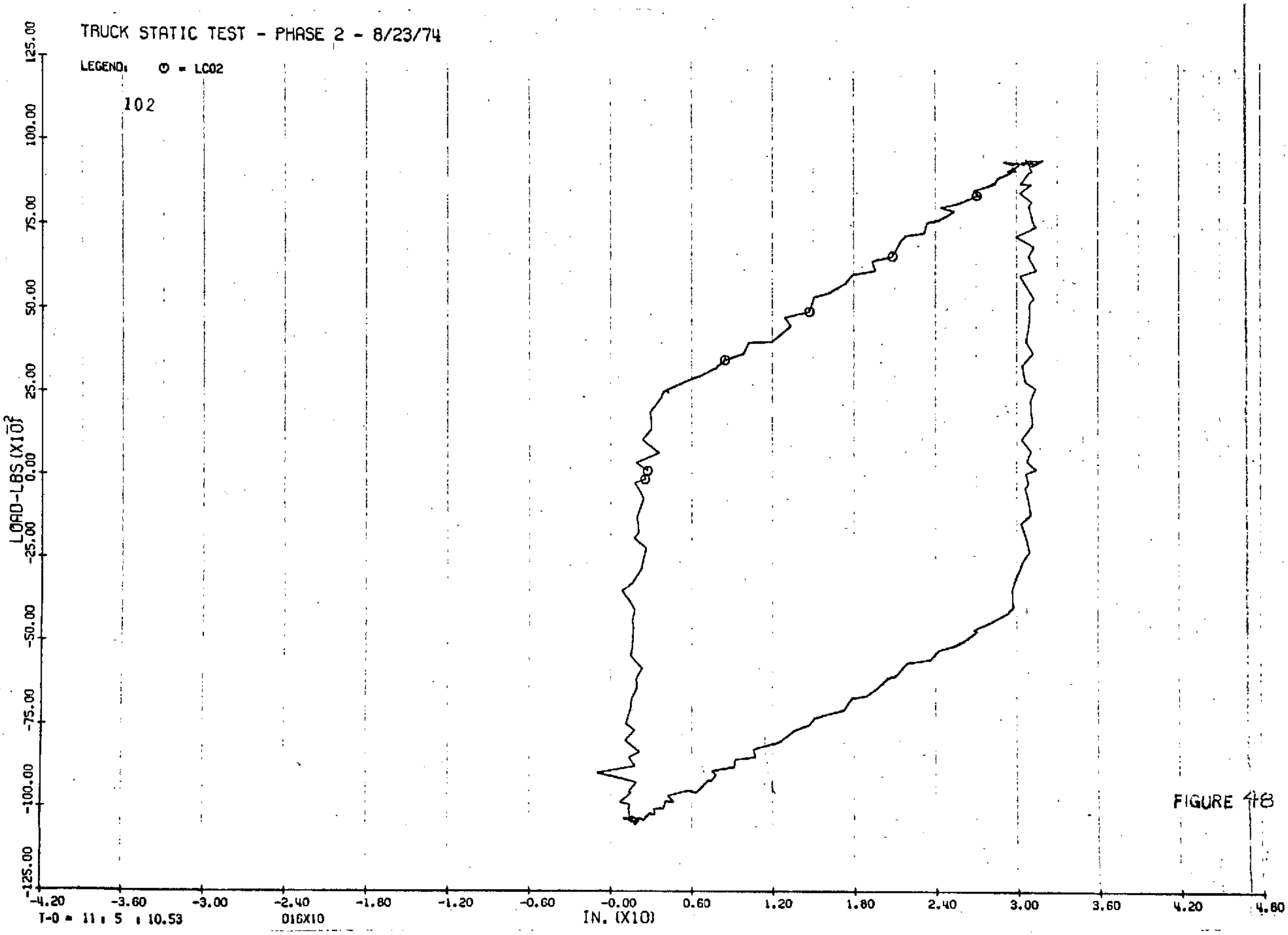

TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
102
LOAD-LBS (X10^{2})
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 11 : 5 : 10.53
D16X10

FIGURE 48

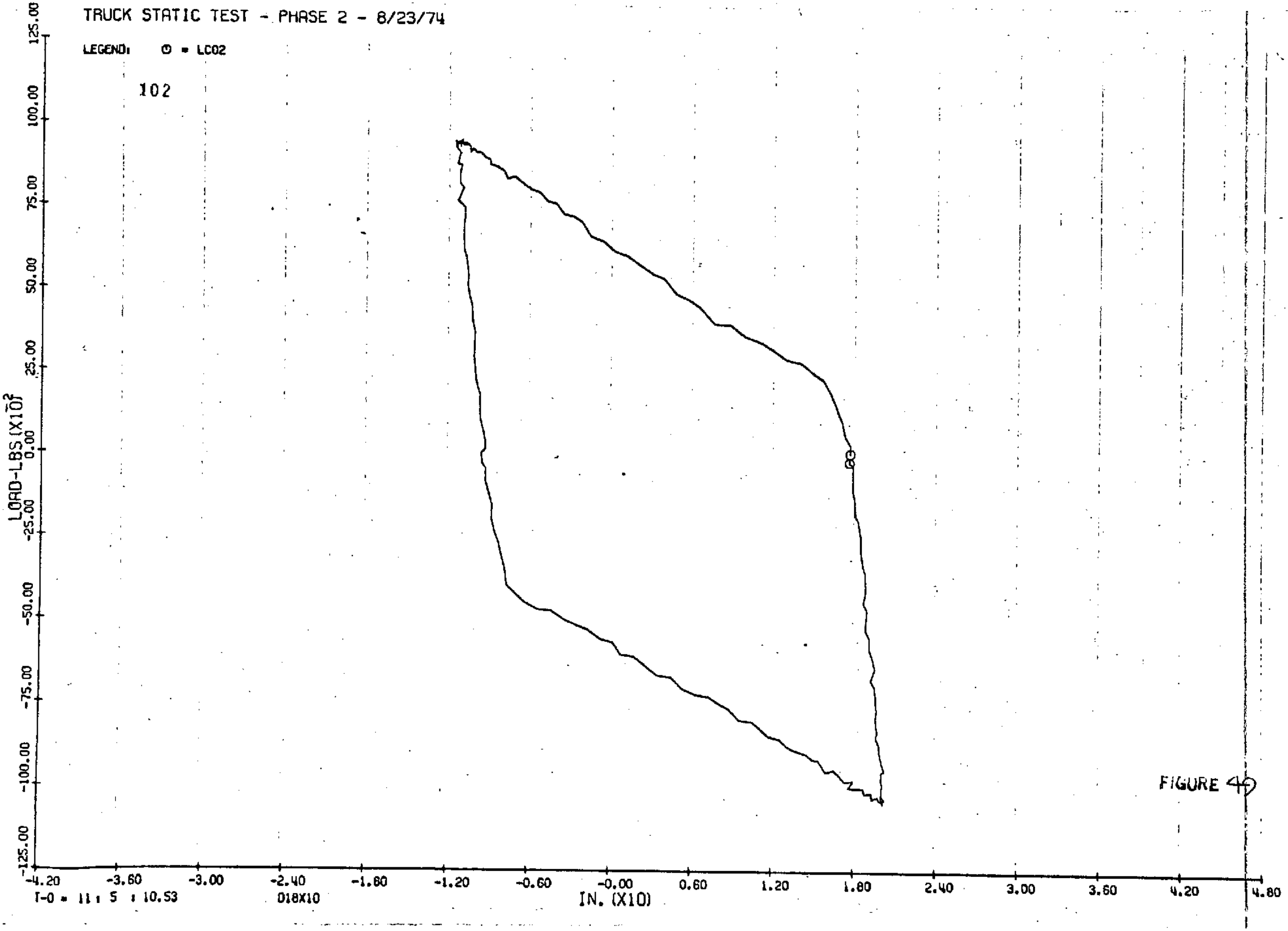


FIGURE 49

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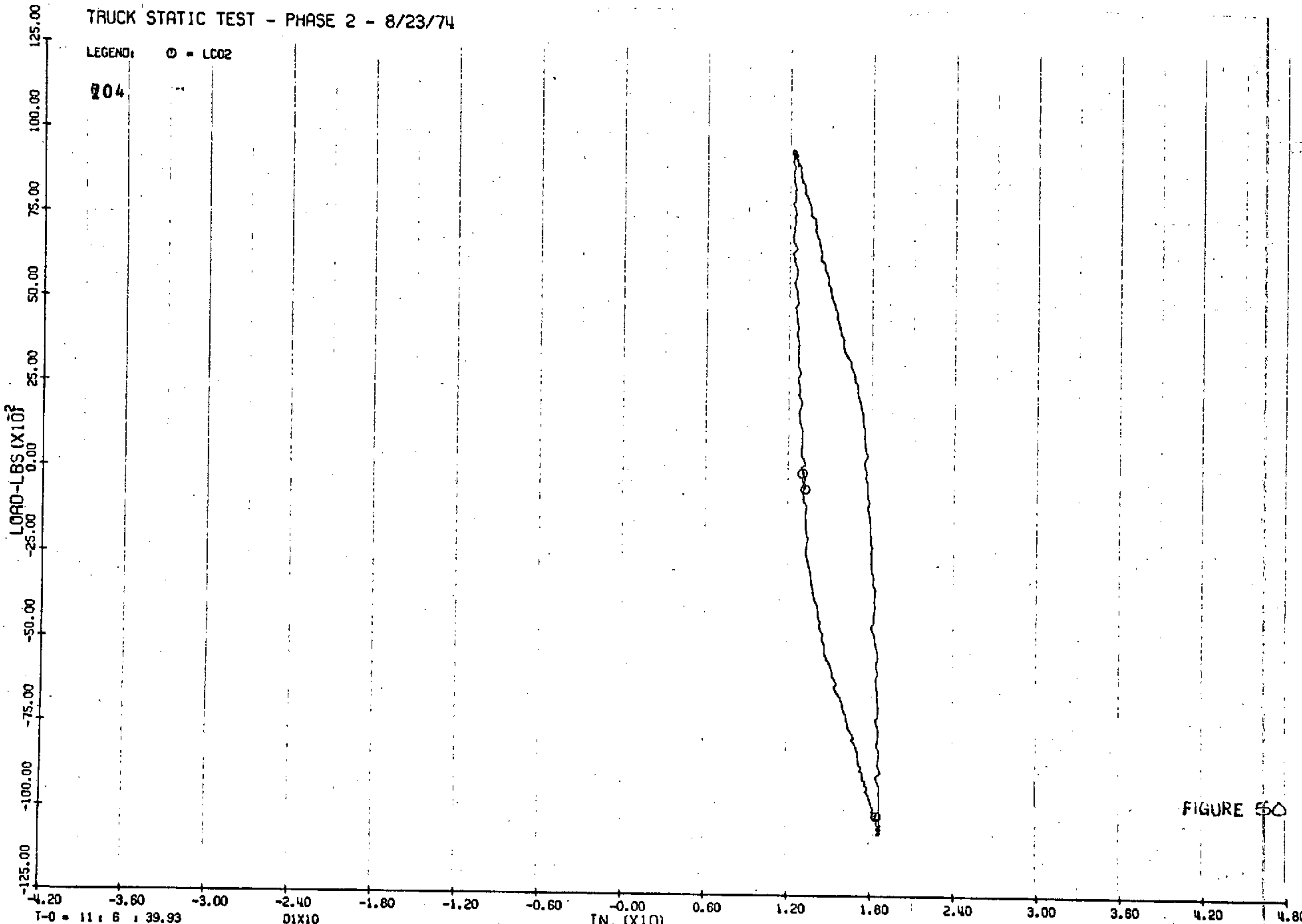

FIGURE 50

TR-131S-74

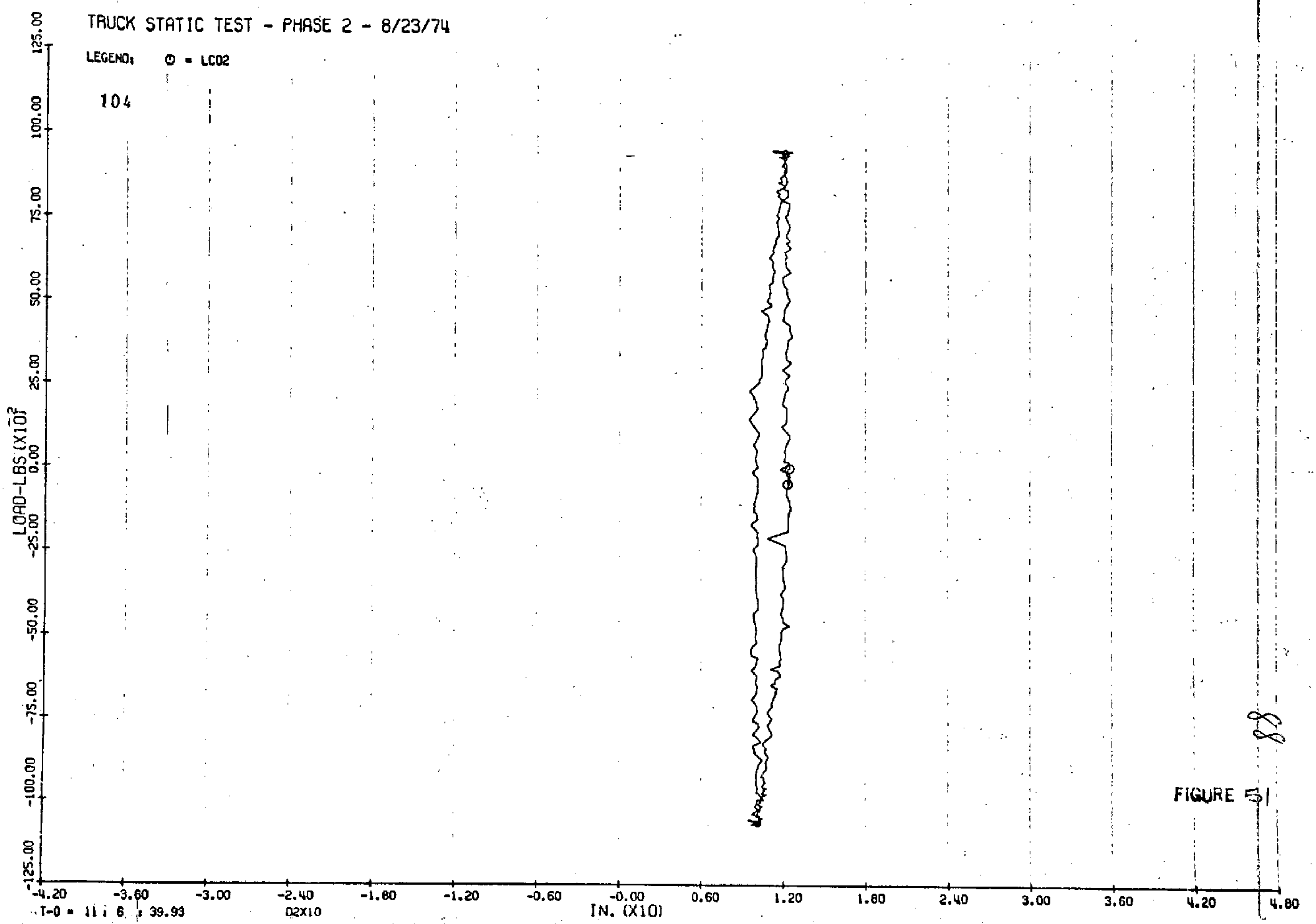
TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
104
LOAD-LBS (X10^2)
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 11 : 6 : 39.93
D2X10

FIGURE 51

88

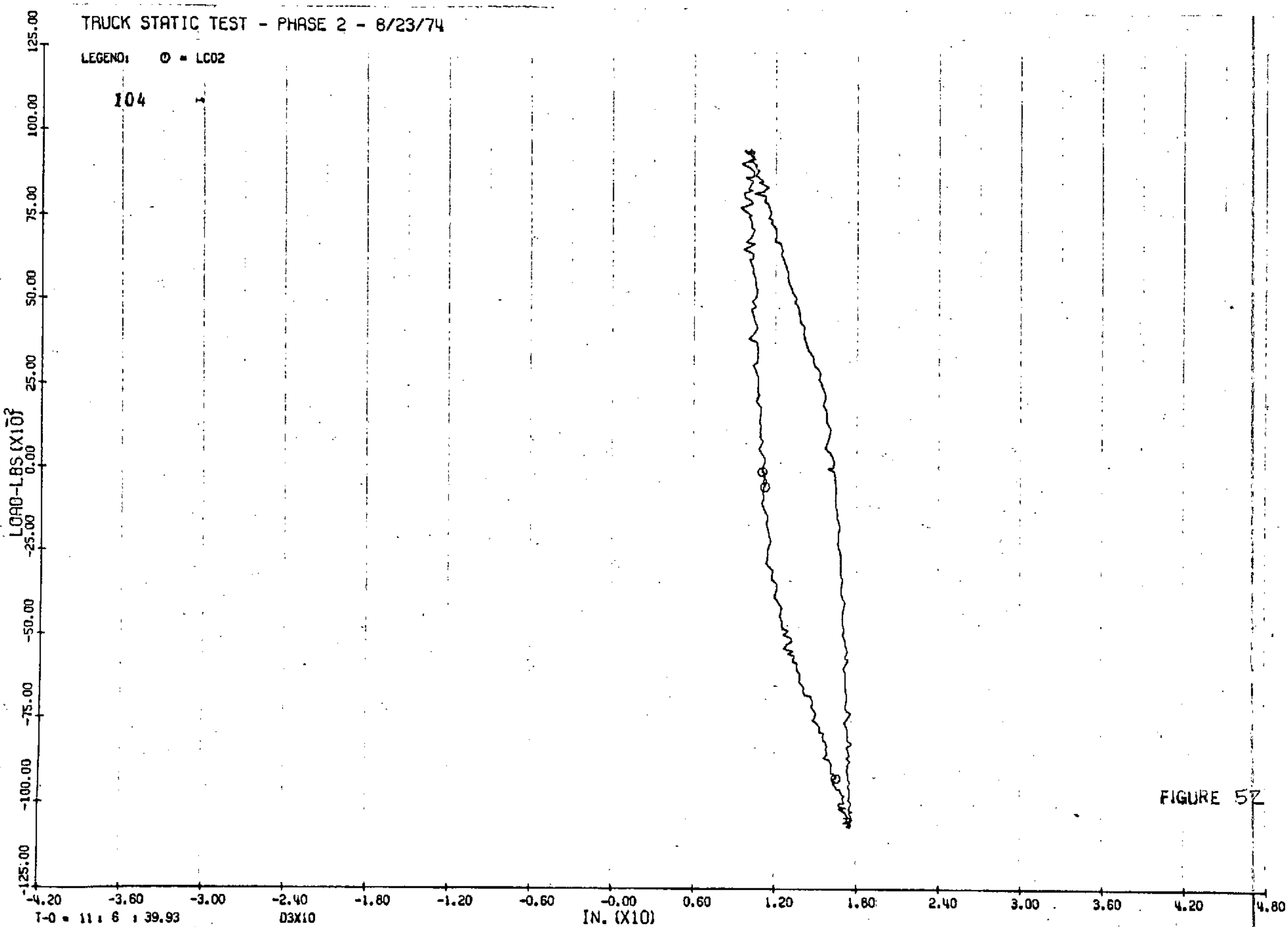

FIGURE 57

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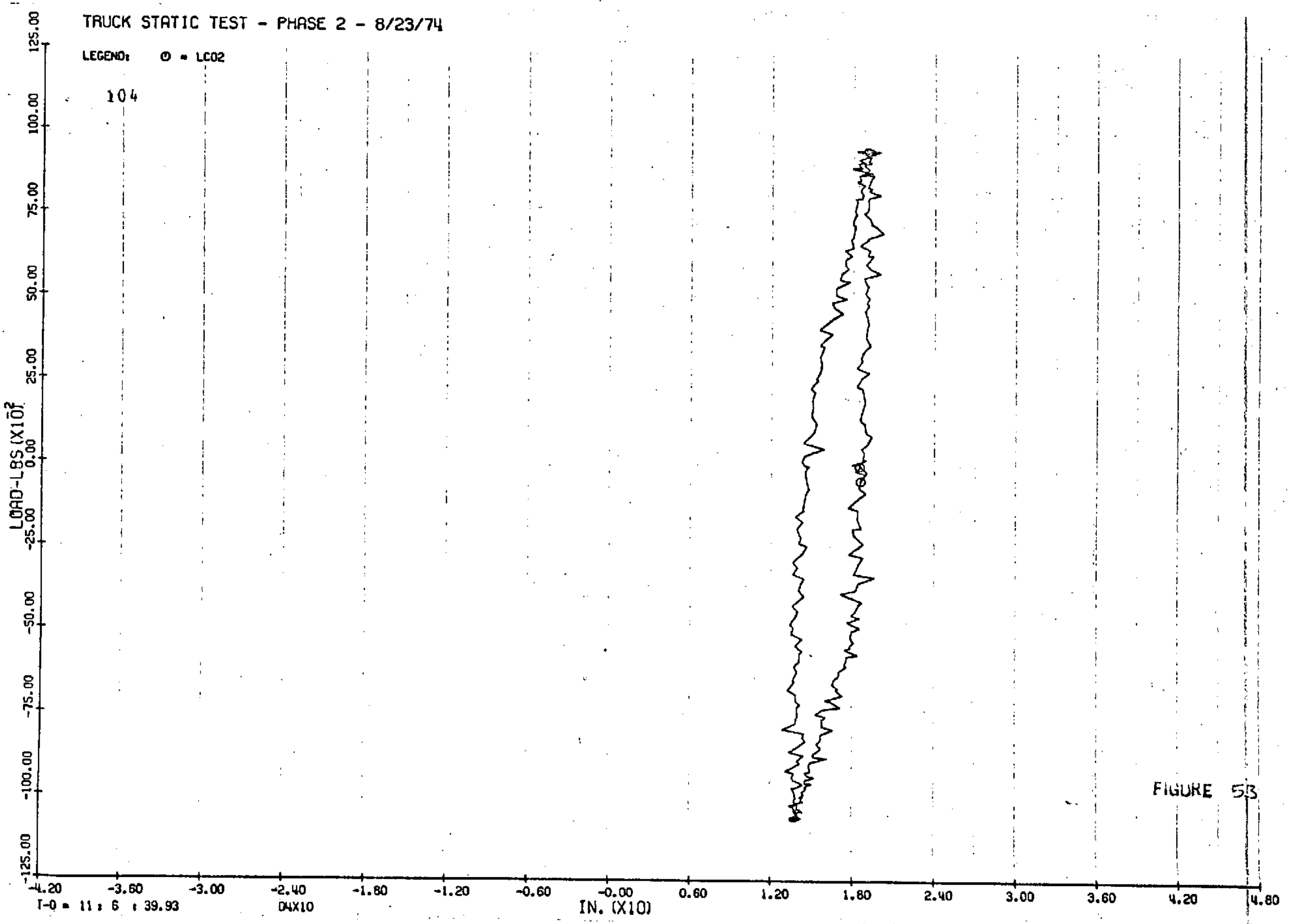

FIGURE 53

TR-131S-74

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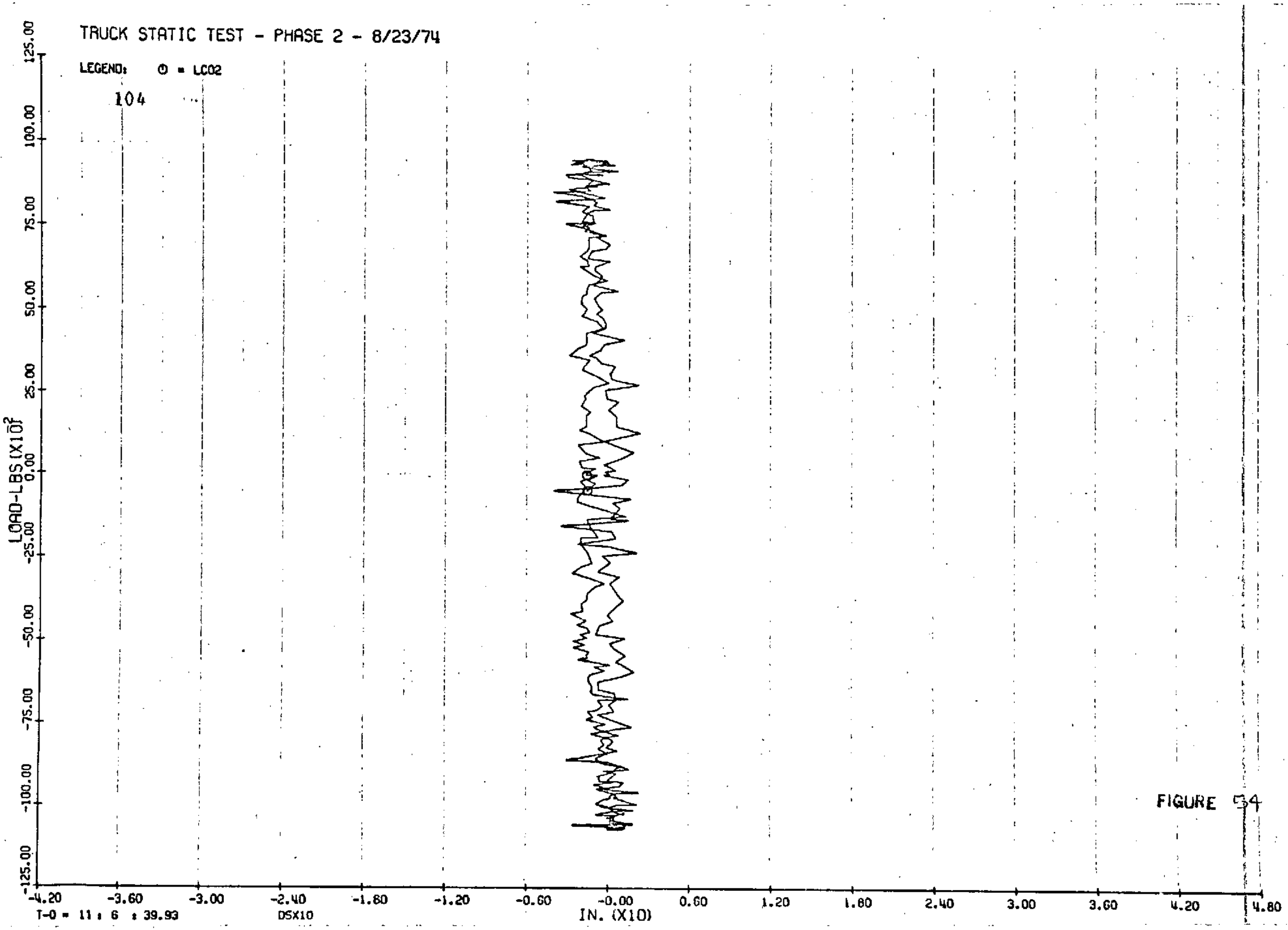

FIGURE 54

TR-131S-74

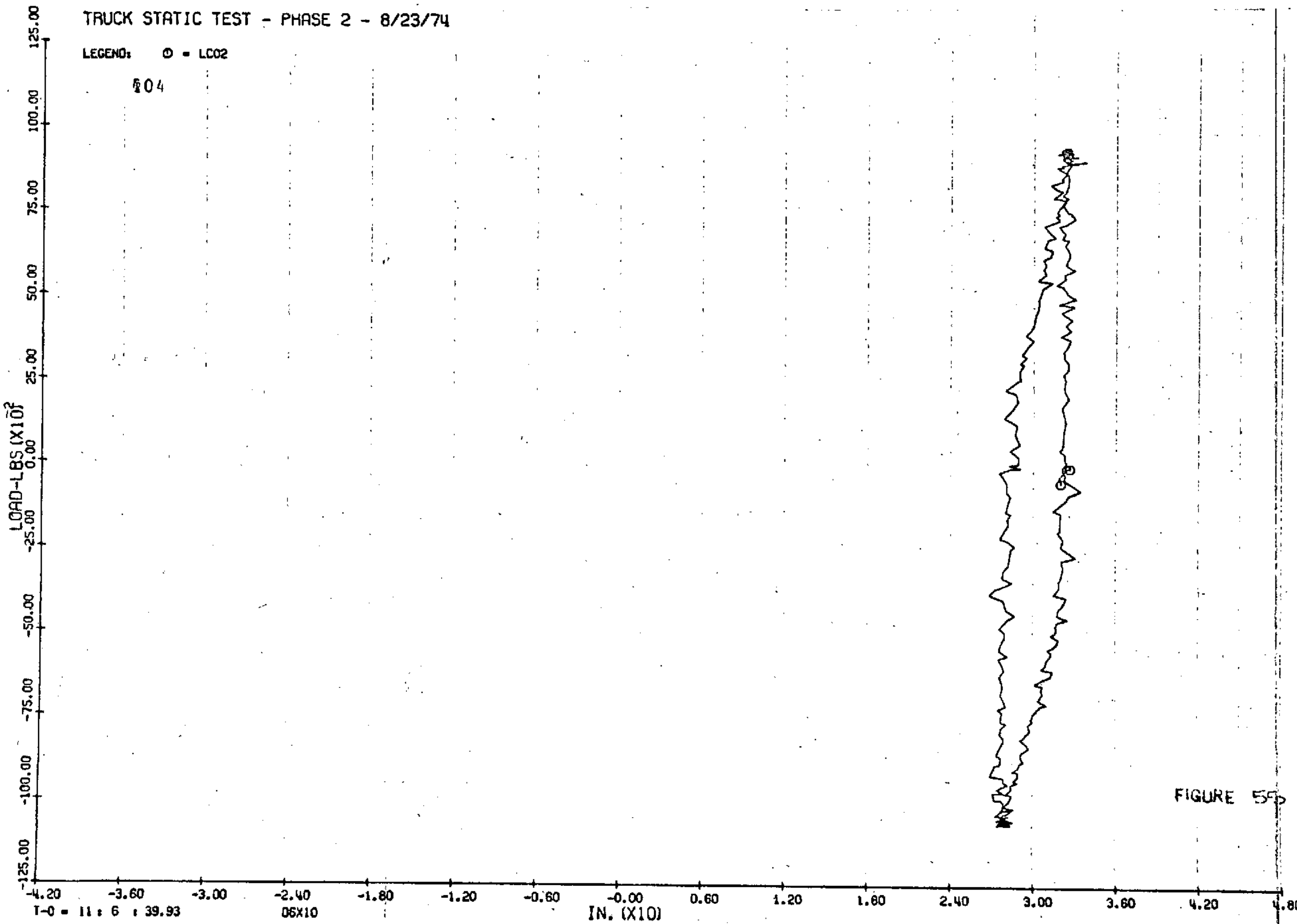

FIGURE 55

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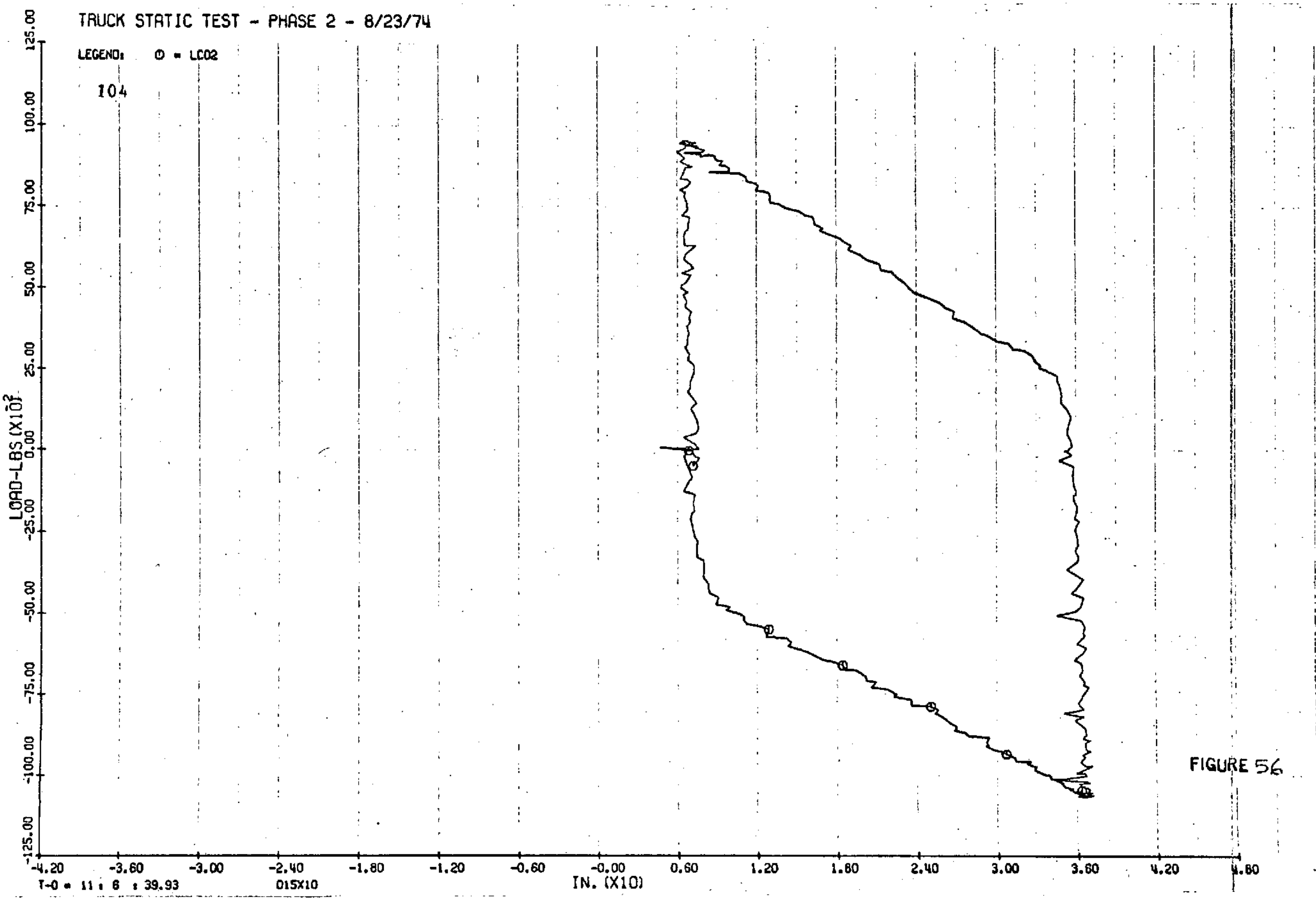

FIGURE 56

TR-131S-74

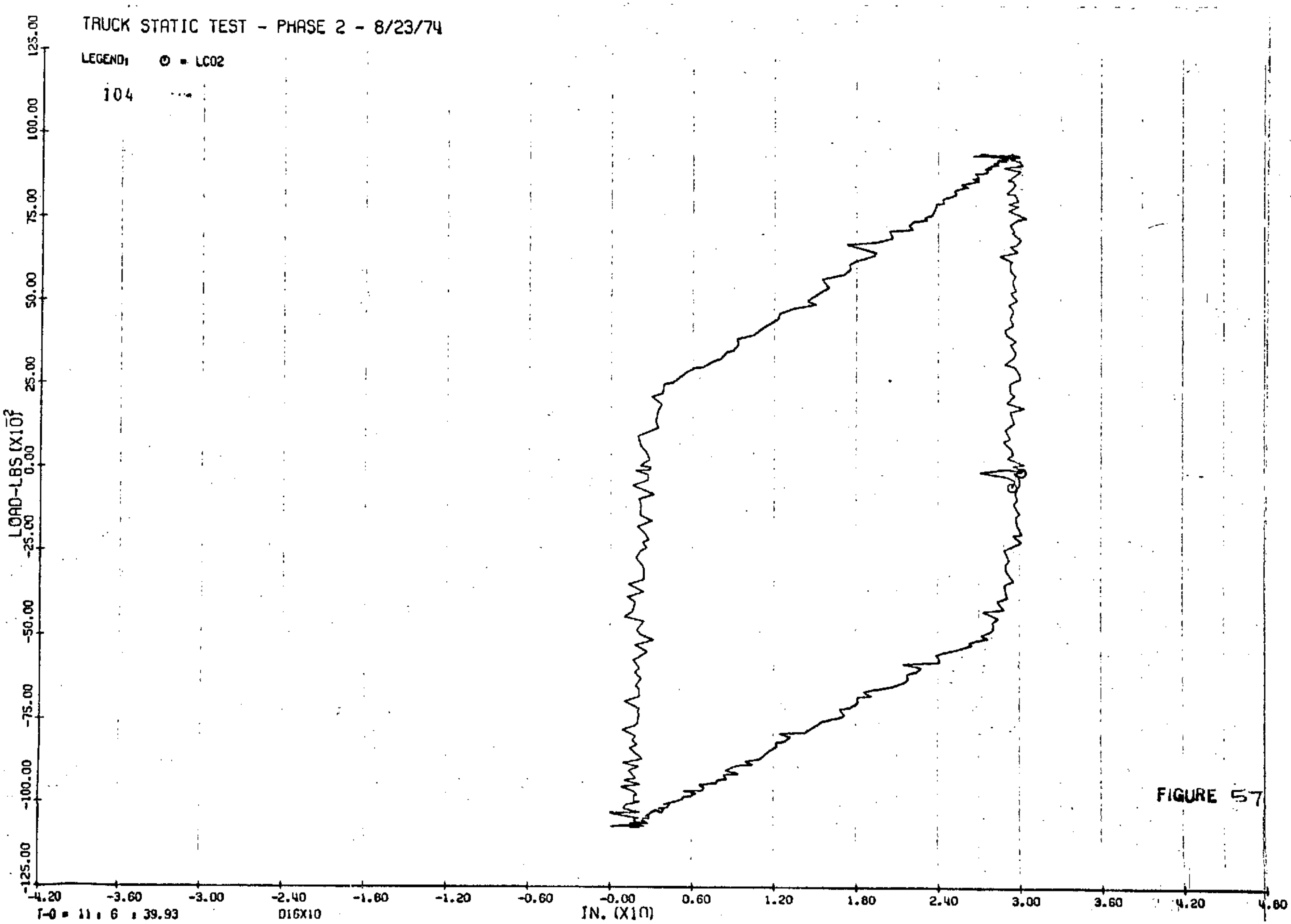
TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
104
LOAD-LBS (X10^{-2})
125.00
100.00
75.00
50.00
25.00
0.00
-25.00
-50.00
-75.00
-100.00
-125.00
-4.20
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
IN. (X10)
T-0 = 11 : 6 : 39.93
DIGX10

FIGURE 57

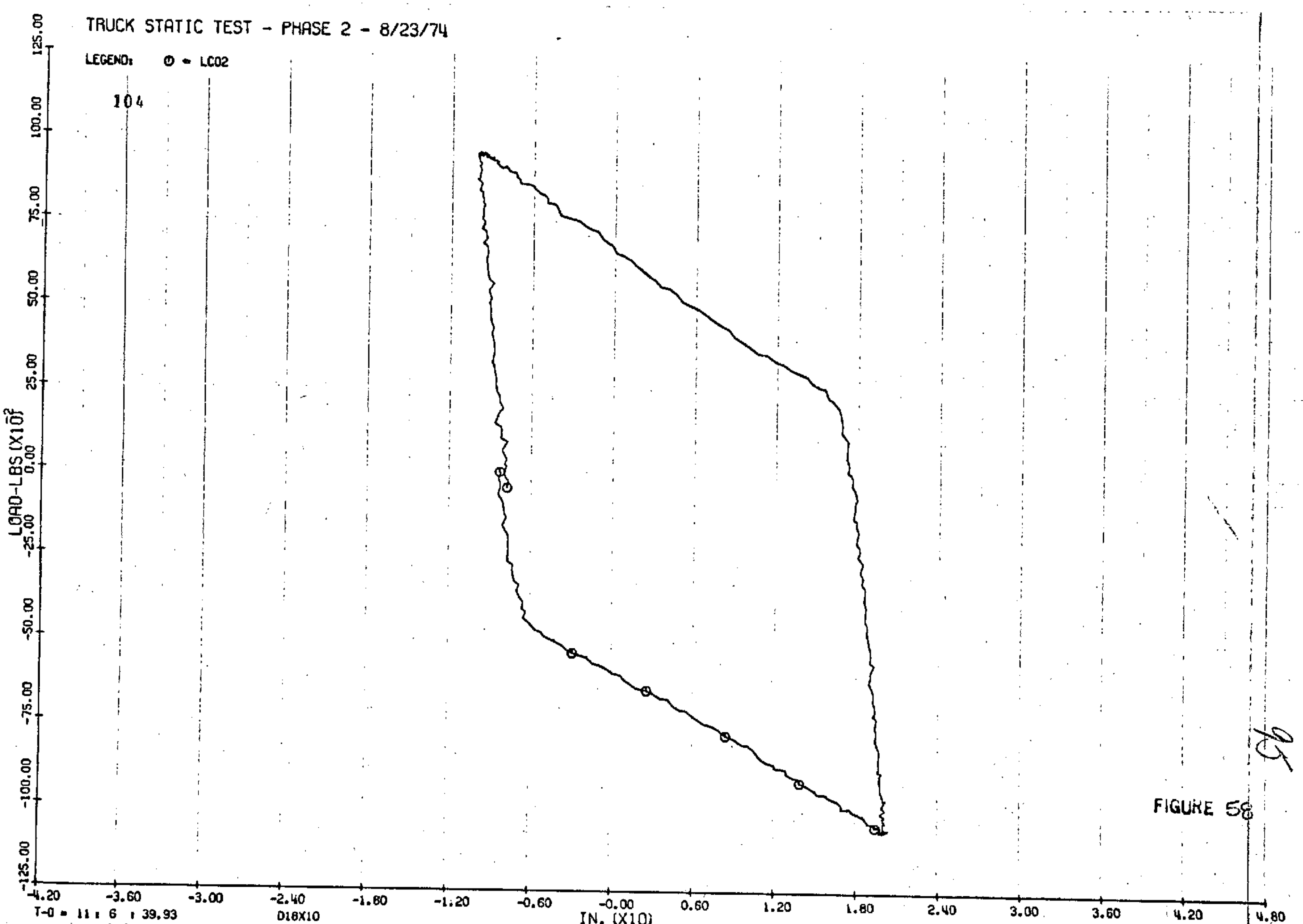
TRUCK STATIC TEST - PHASE 2 - 8/23/74
LEGEND: ⊙ = LC02
104
LOAD-LBS (X10²)
IN. (X10)
T-0 = 11 : 6 : 39.93
D18X10

FIGURE 58

95

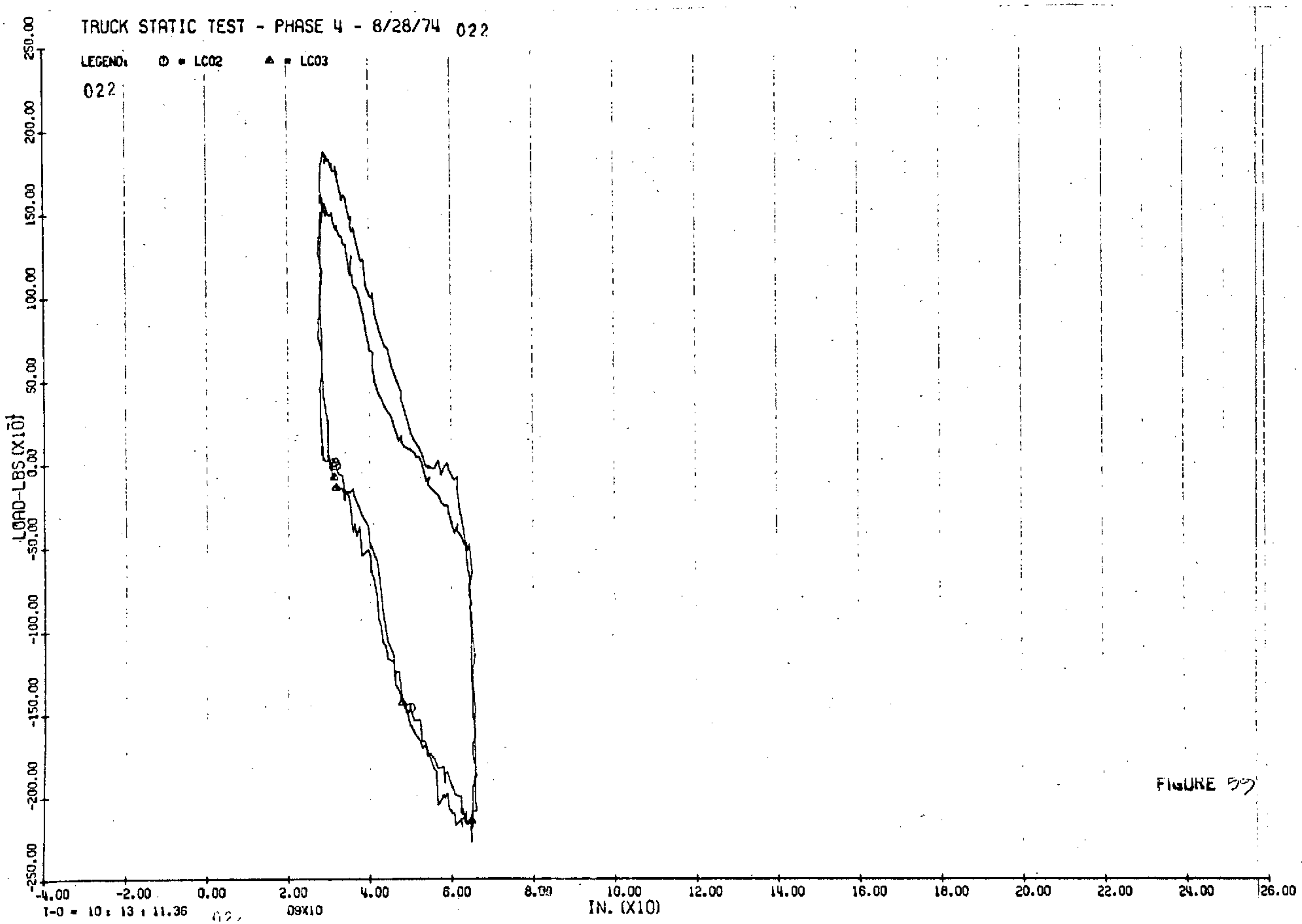

FIGURE 59

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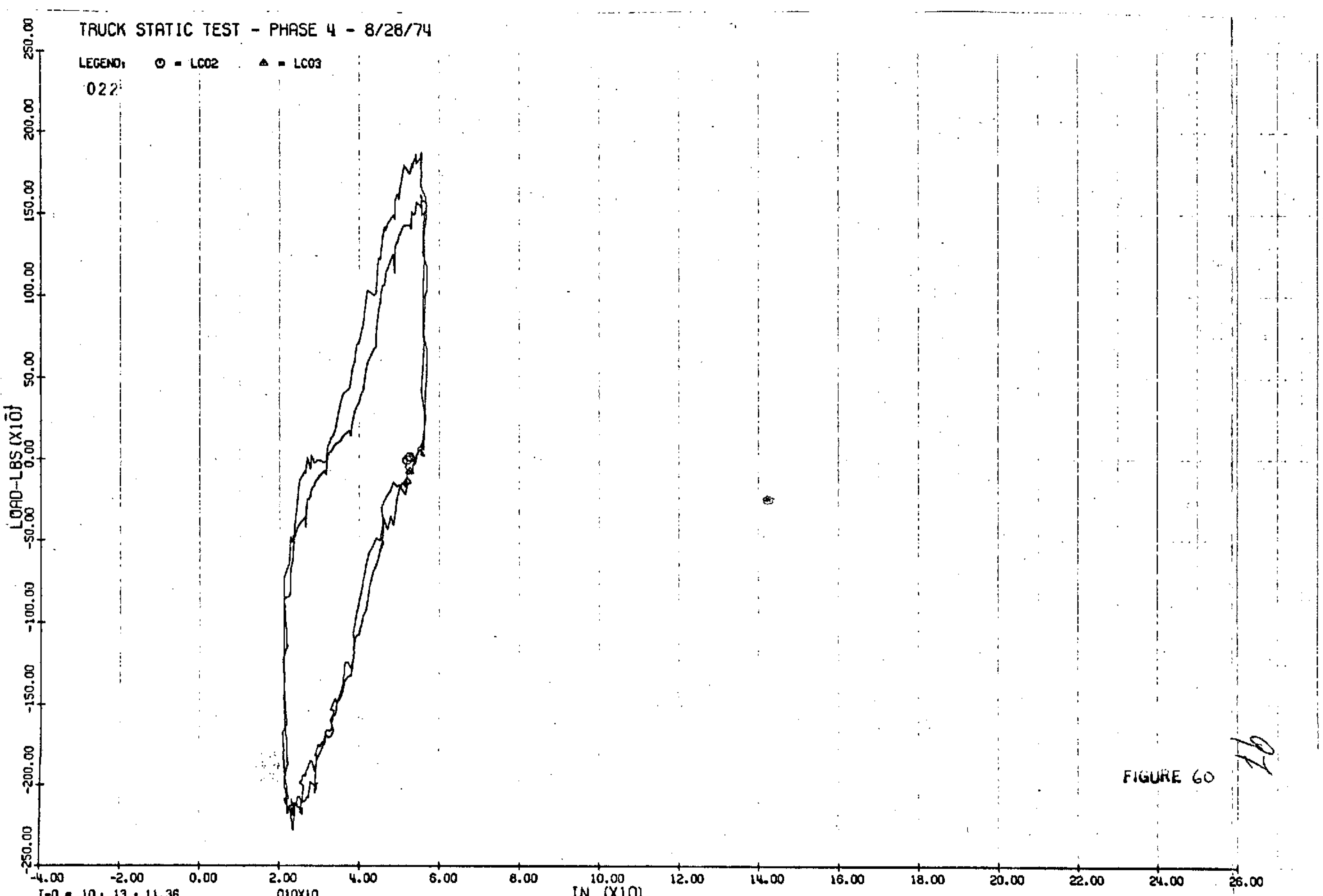
TRUCK STATIC TEST - PHASE 4 - 8/28/74
LEGEND: ⊙ = LC02 △ = LC03
022
LOAD-LBS (X10)
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-4.00
-2.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
IN. (X10)
T-0 = 10 : 13 : 11.36
010X10

FIGURE 60

70

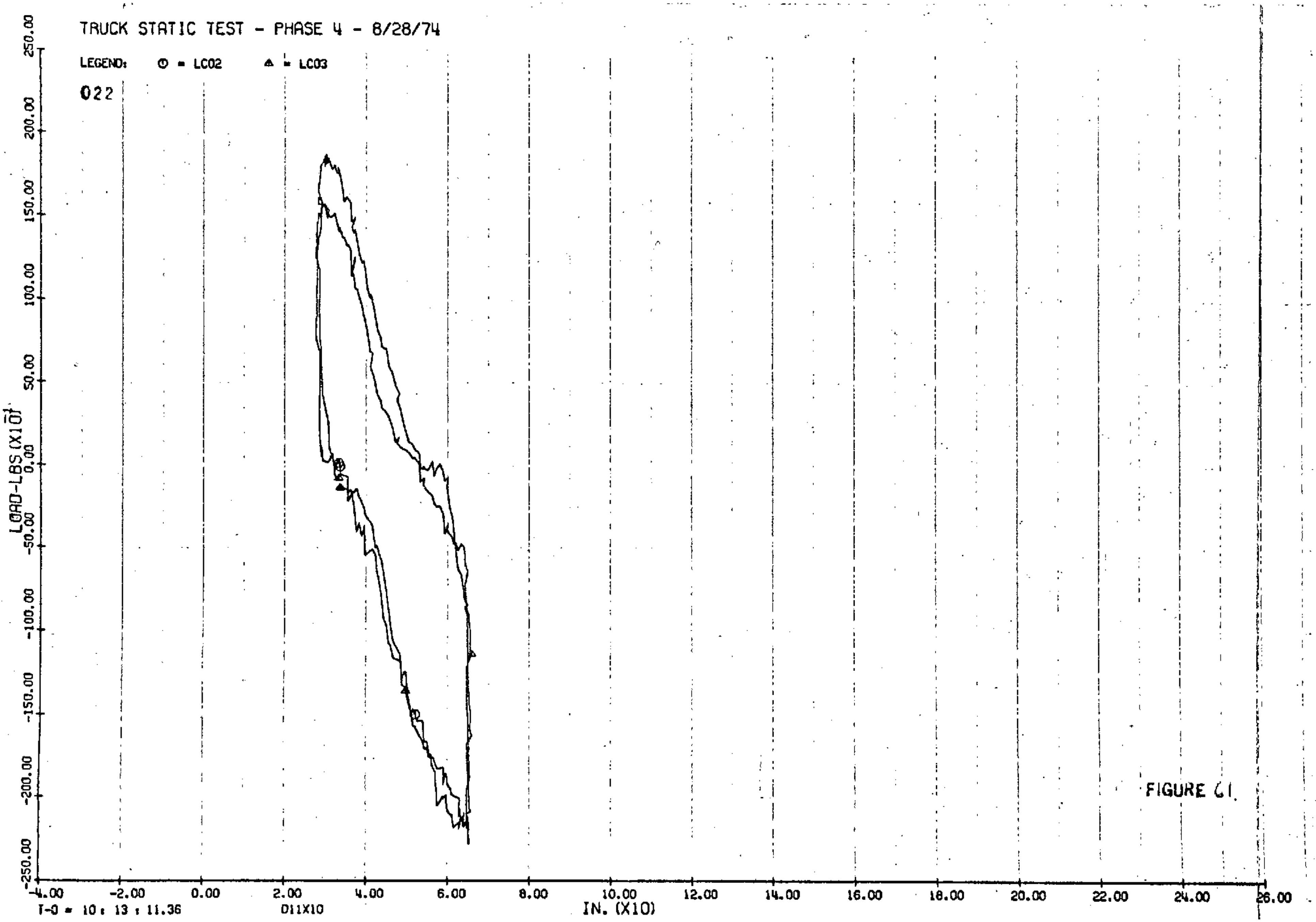

FIGURE 61

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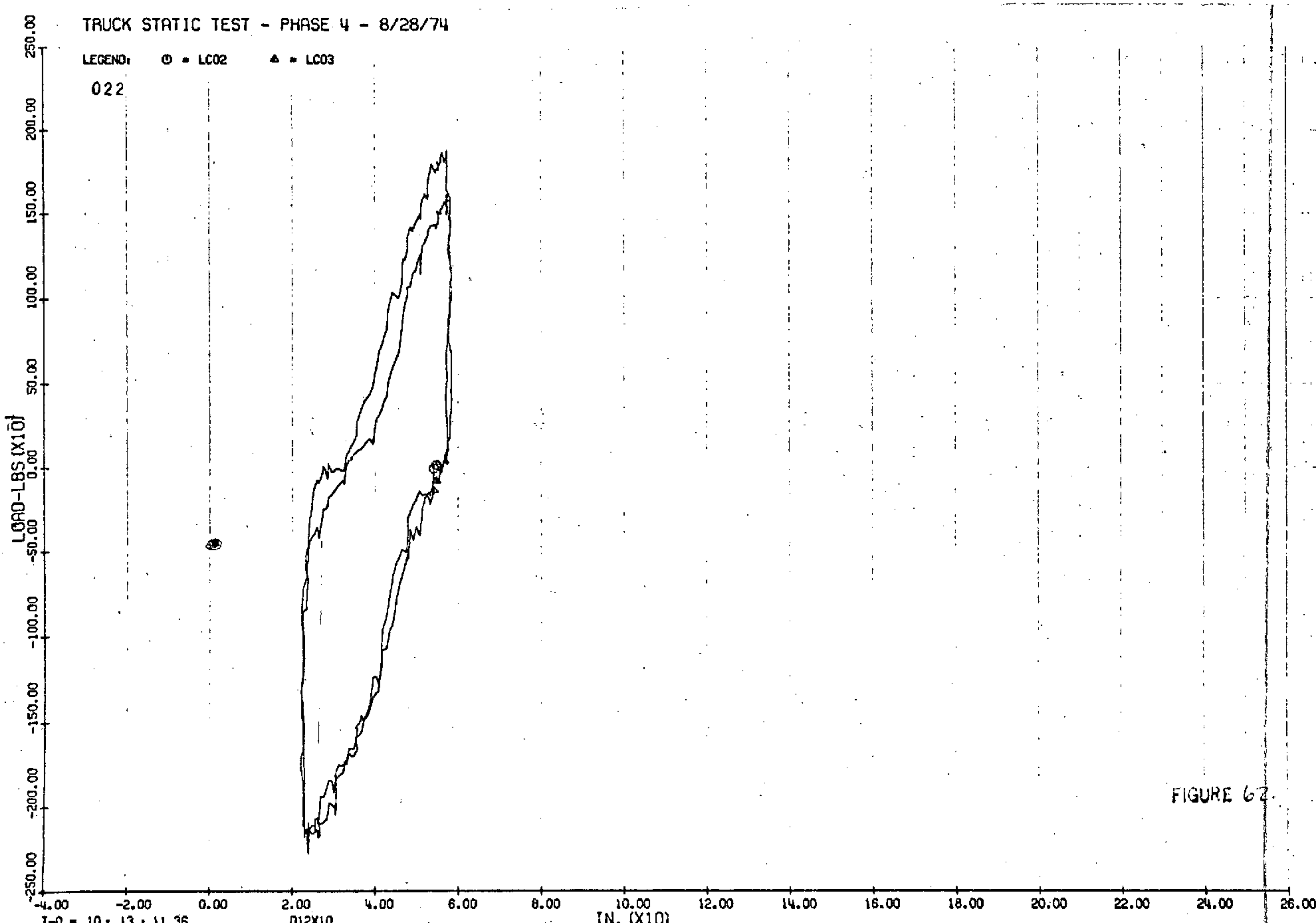

FIGURE 67

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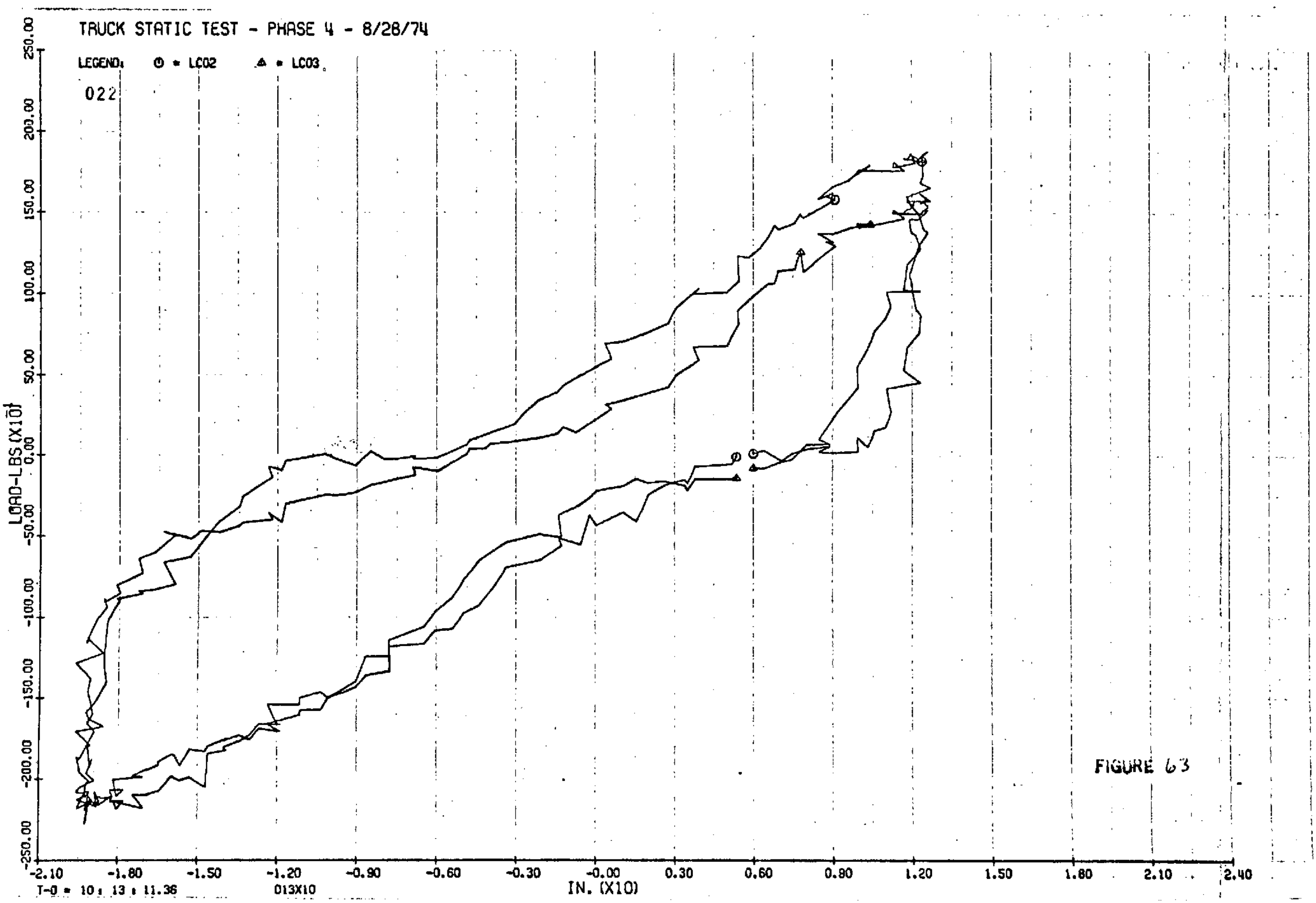

FIGURE 63

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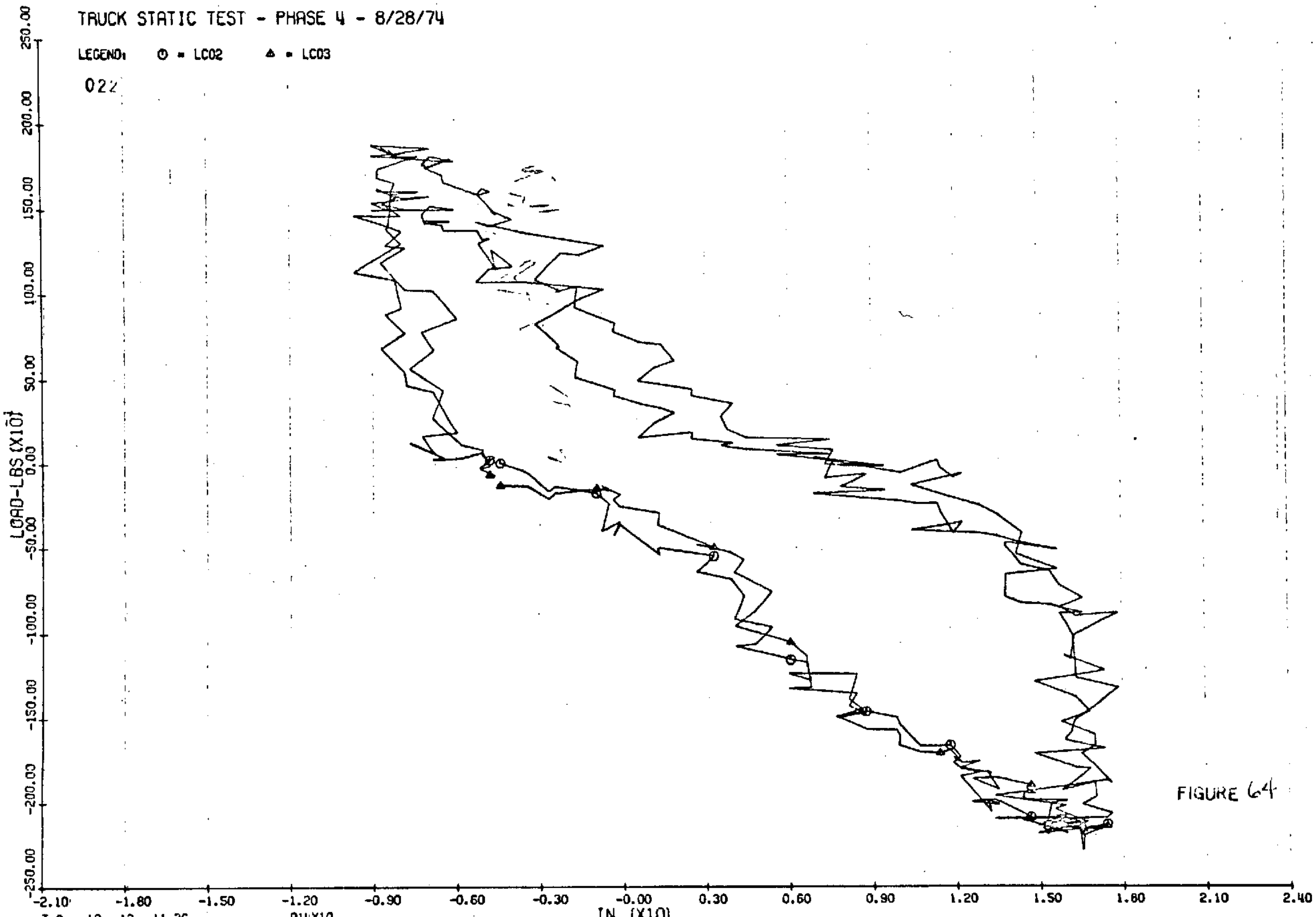
TRUCK STATIC TEST - PHASE 4 - 8/28/74
LEGEND: ⊙ = LC02 △ = LC03
022
LOAD-LBS (X10¹)
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
2.40
IN. (X10)
T-0 = 10 : 13 : 11.36
014X10

FIGURE 64

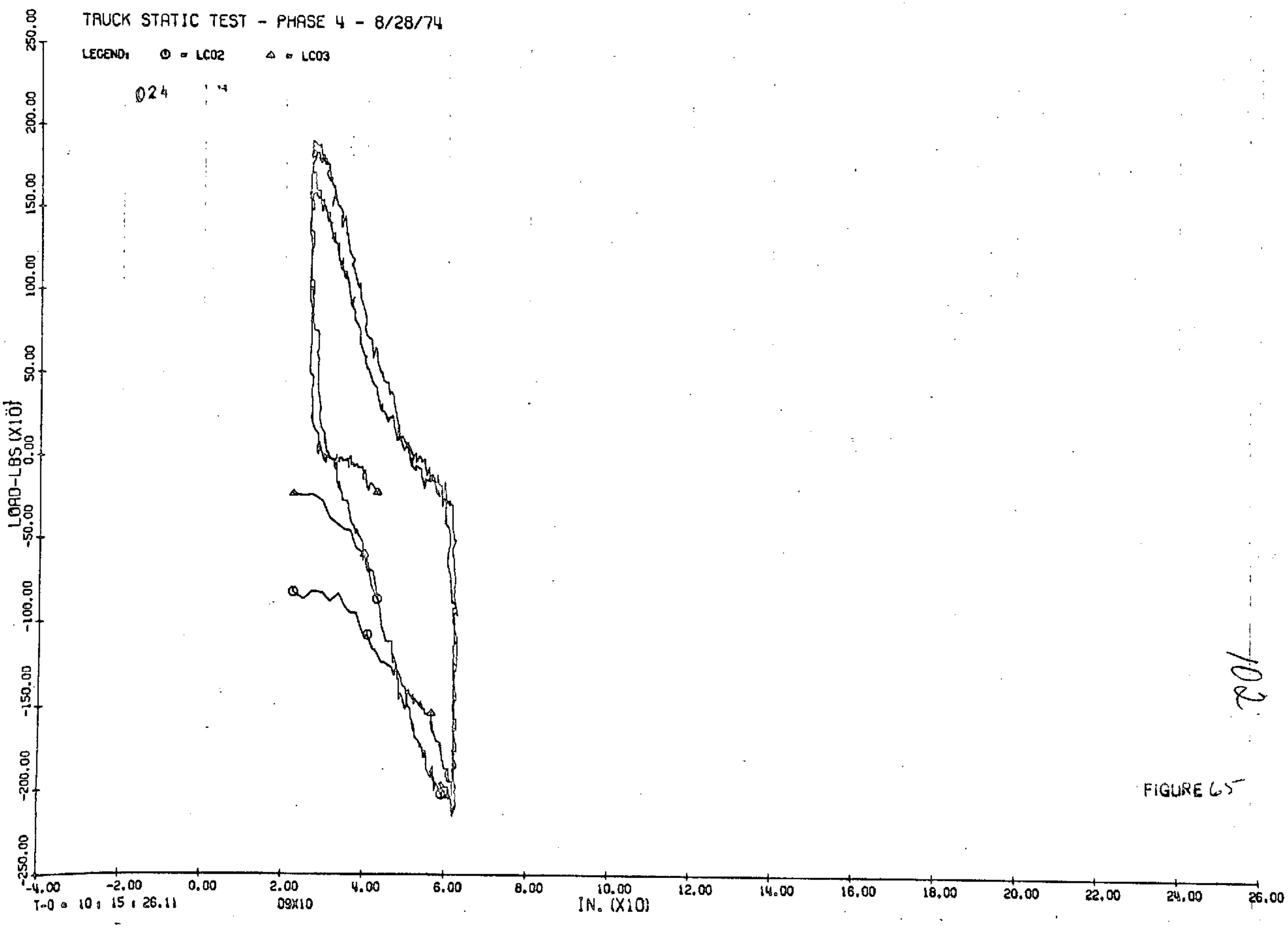

FIGURE 65

102

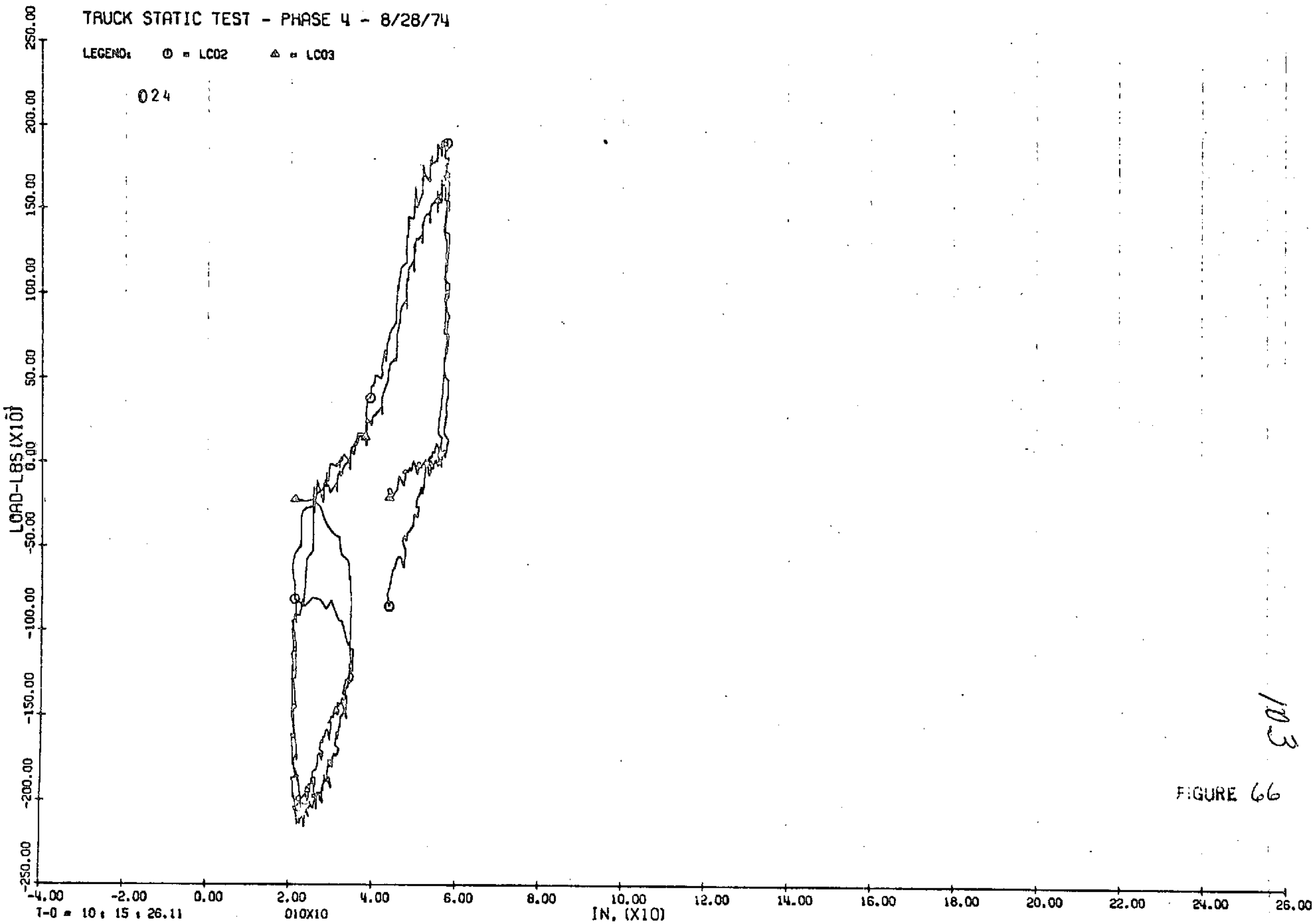

FIGURE 66

TR-131S-74

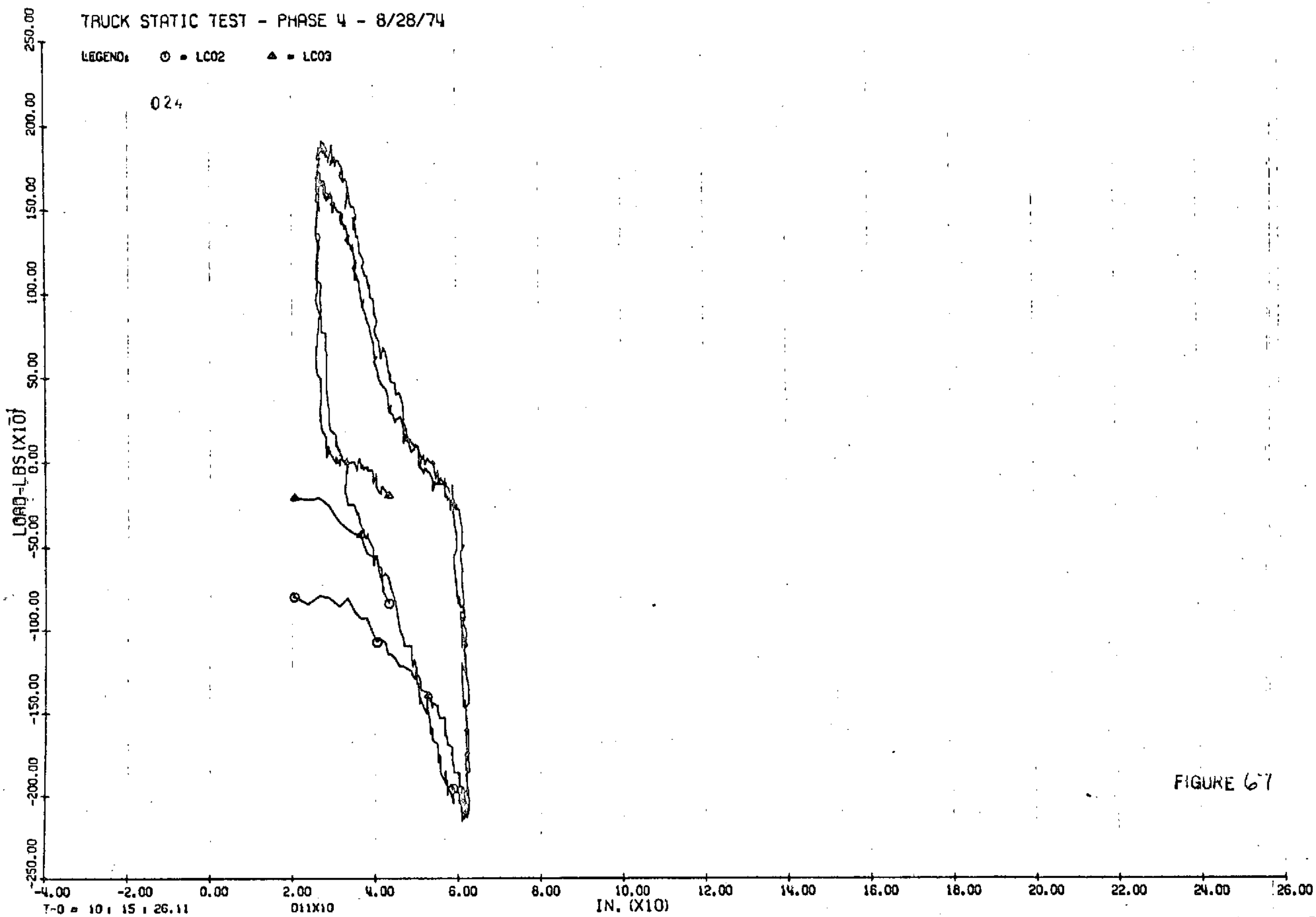

FIGURE 67

TR-1315-74

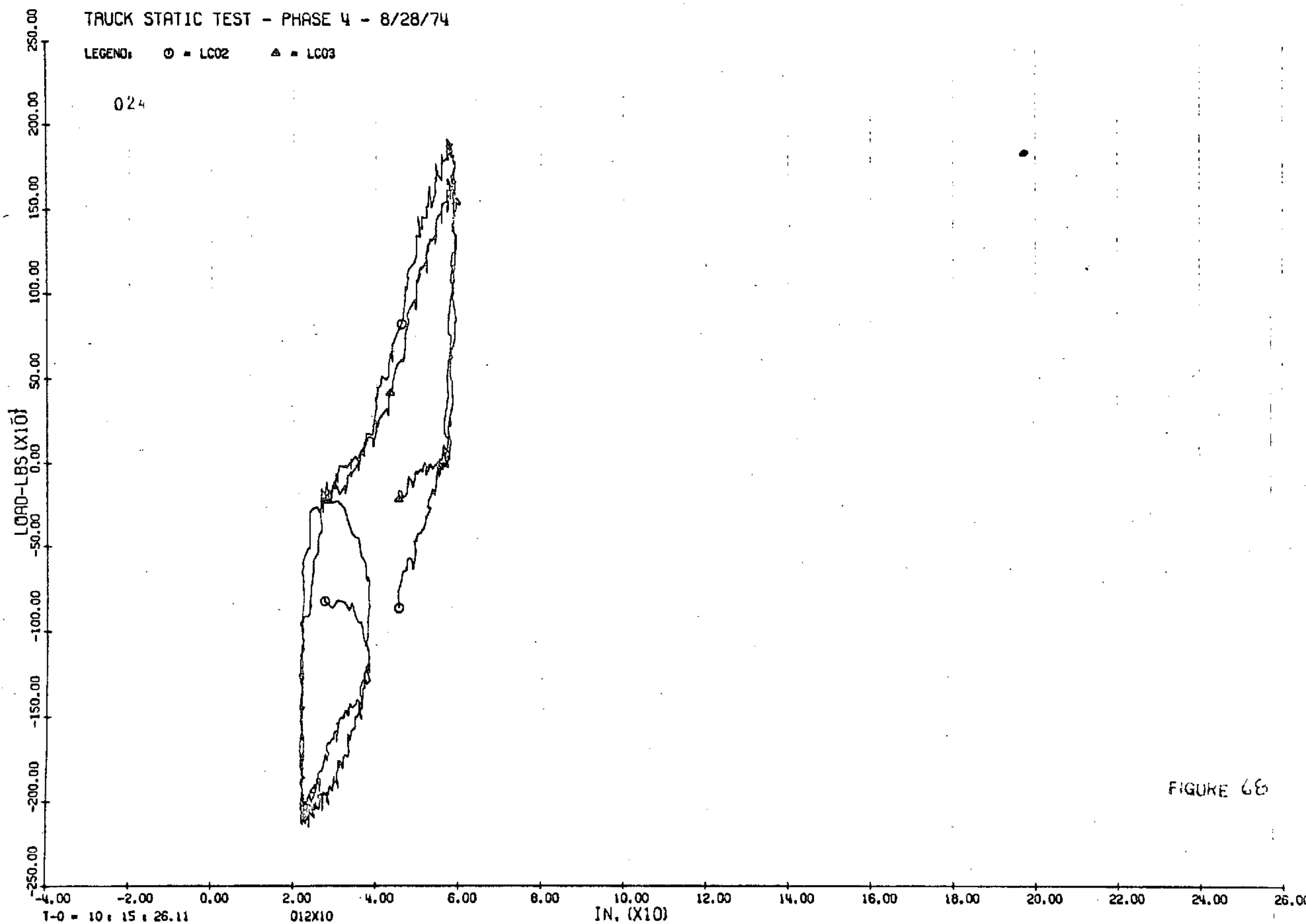

FIGURE 66

TR-131S-74

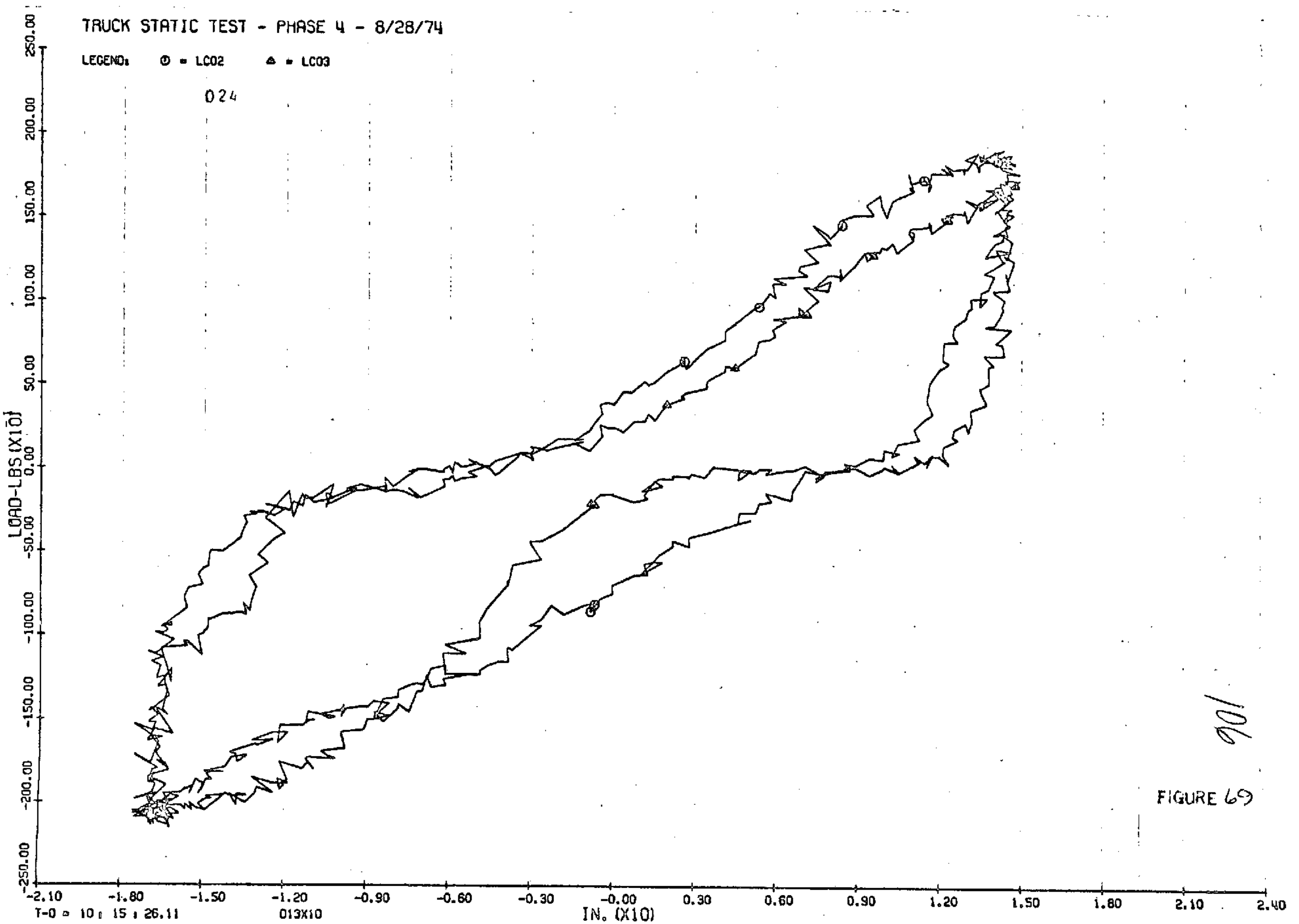

FIGURE 69

106

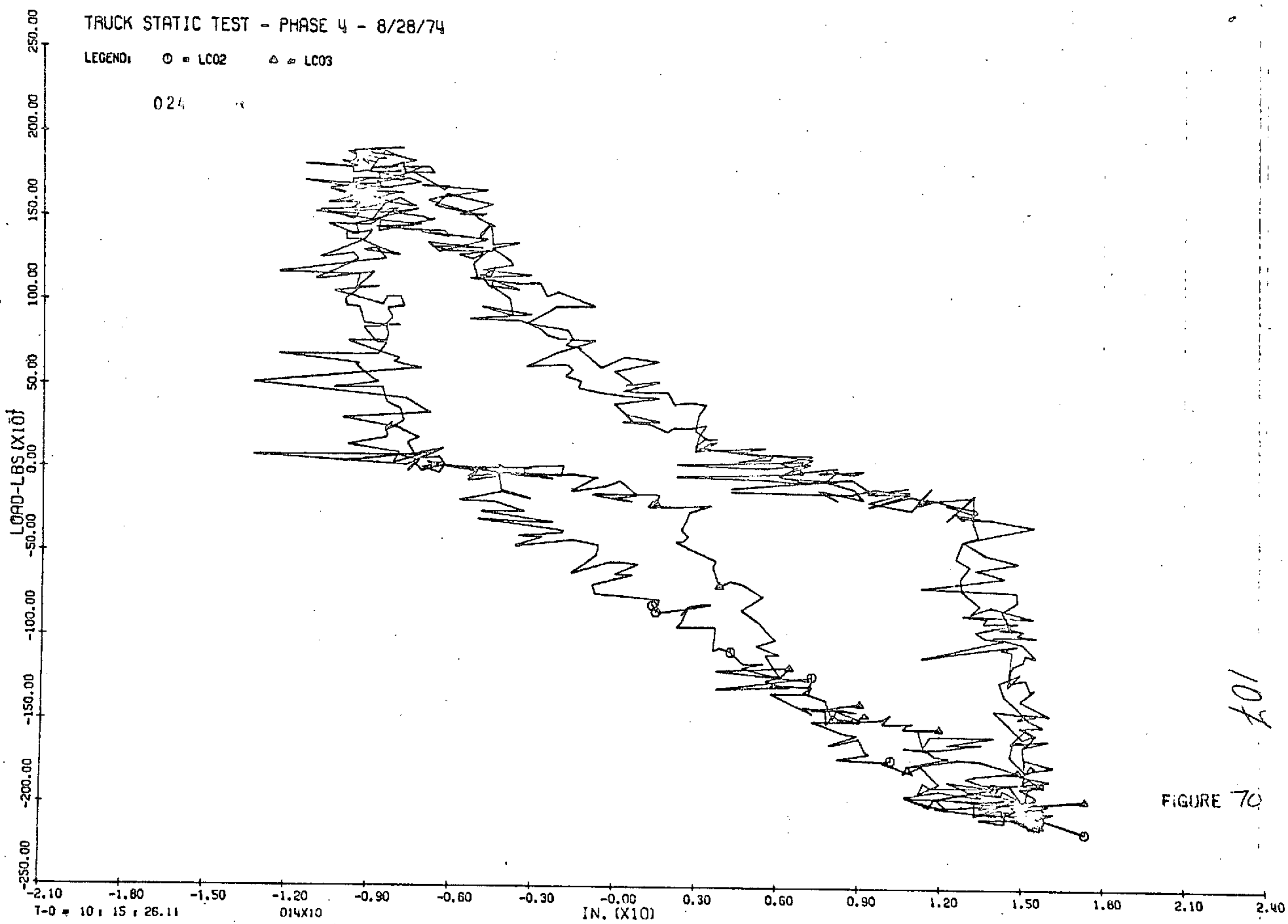

FIGURE 70

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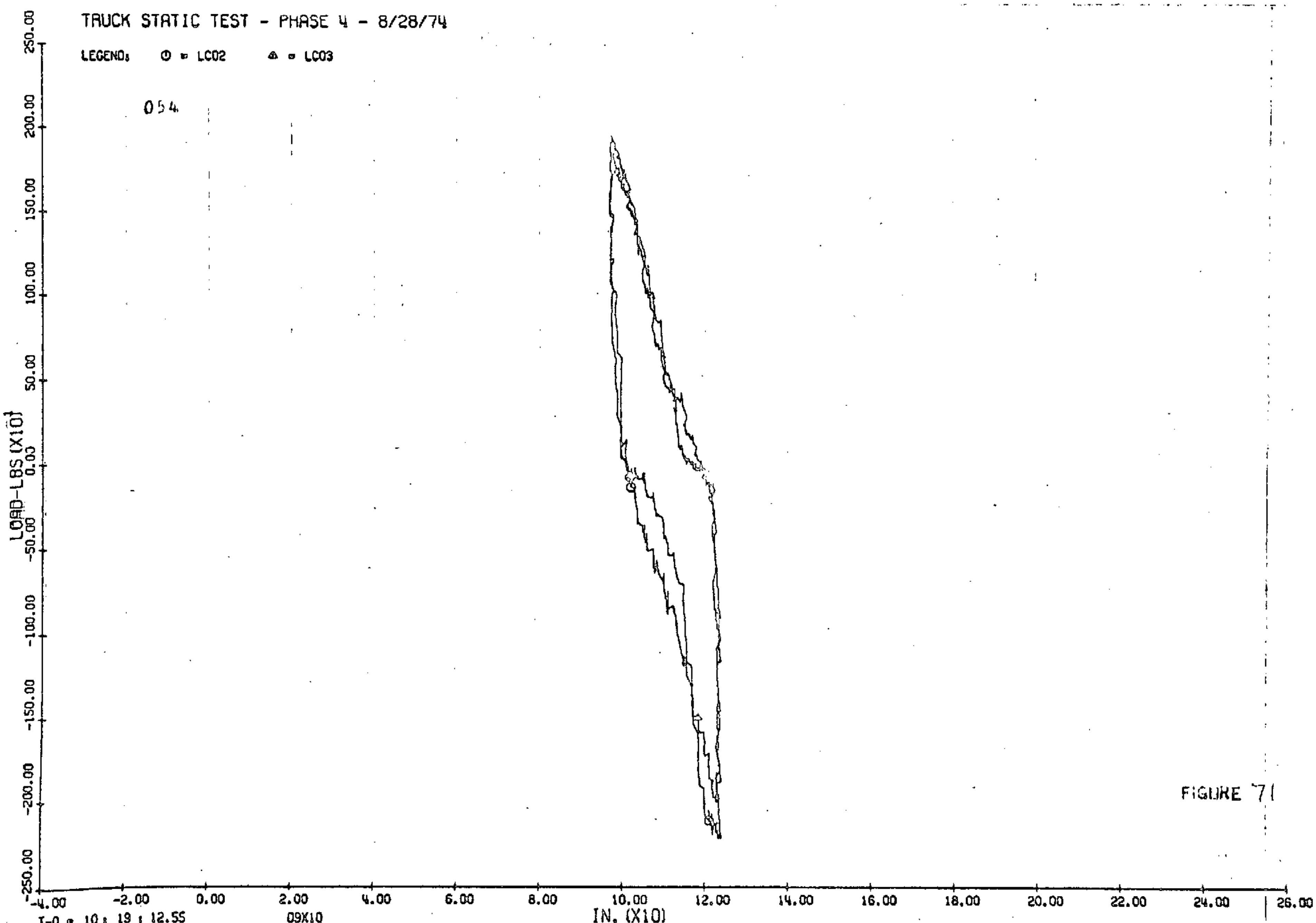

FIGURE 71

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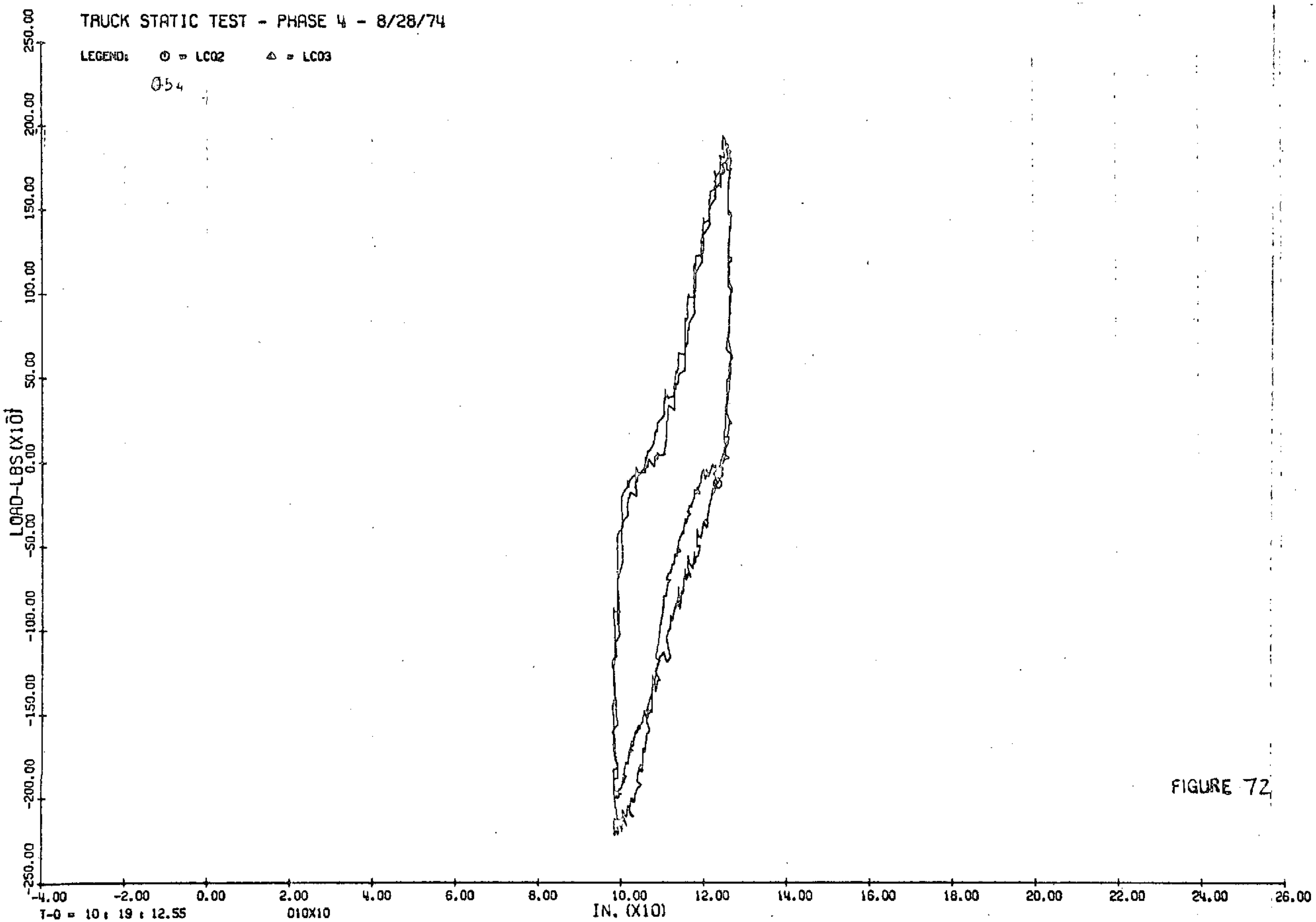
TRUCK STATIC TEST - PHASE 4 - 8/28/74
LEGEND: ⊙ = LC02 △ = LC03
054
LOAD-LBS (X10)
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-4.00
-2.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
IN. (X10)
T-0 = 10 : 19 : 12.55
010X10

FIGURE 72

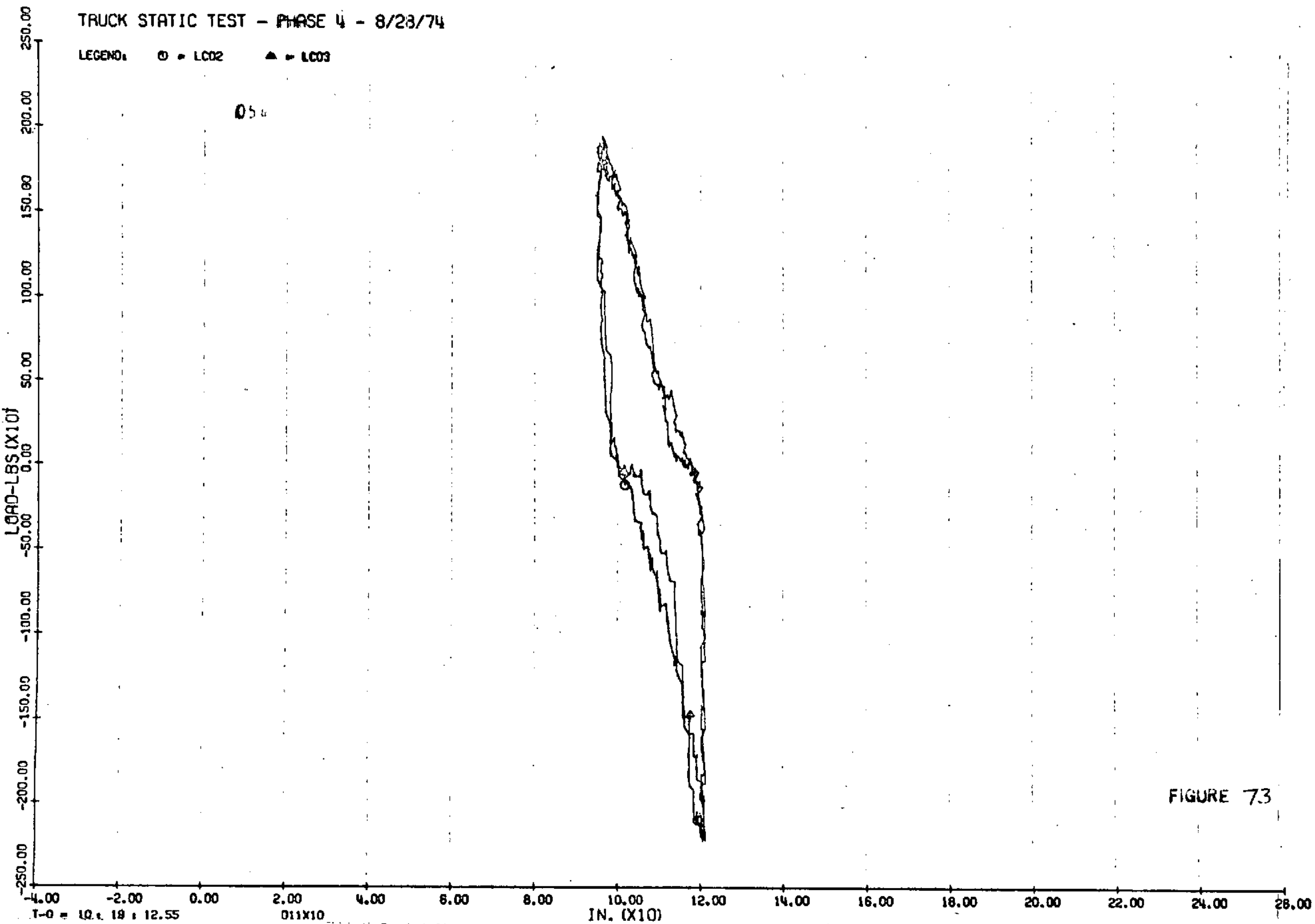

FIGURE 73

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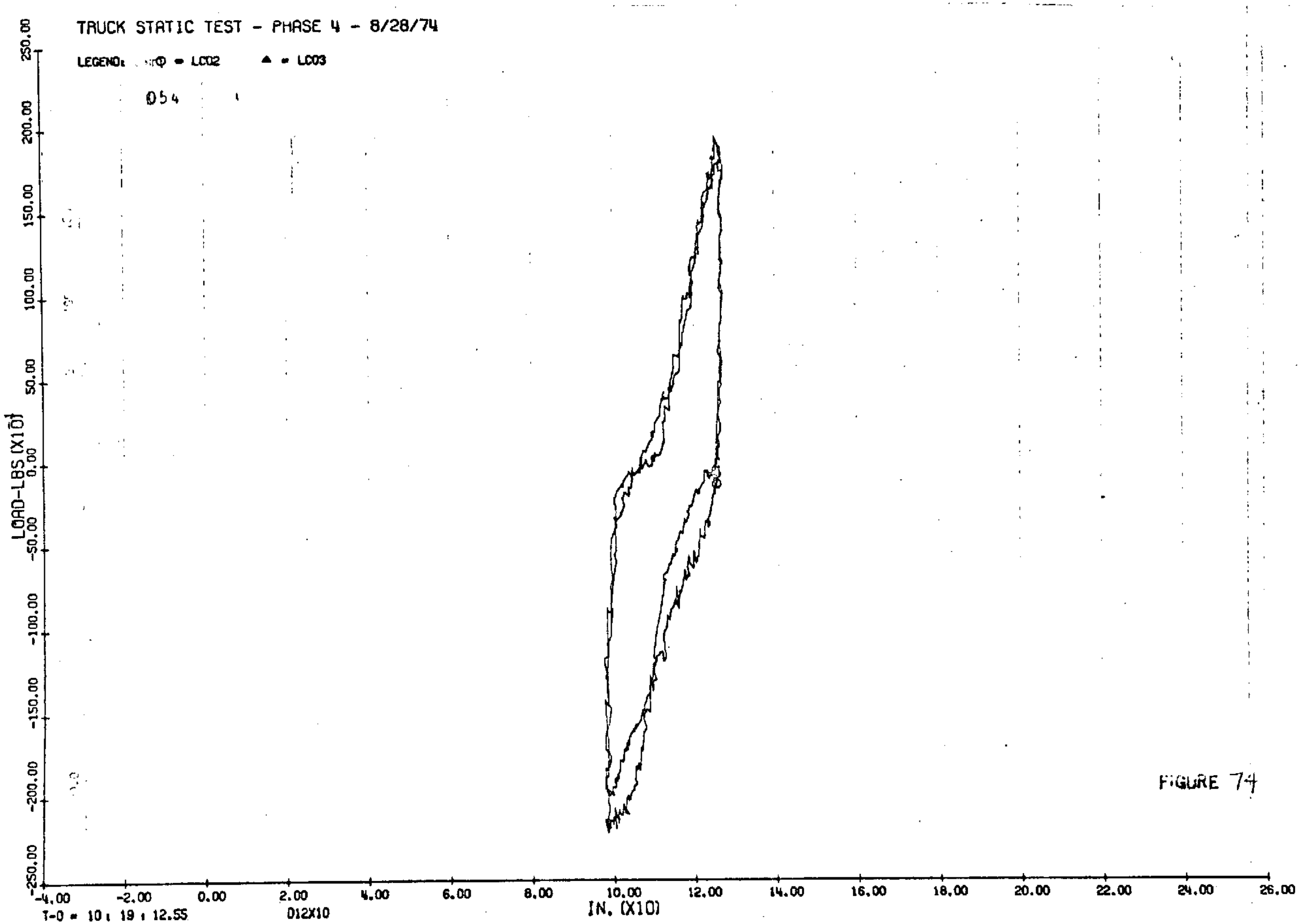

FIGURE 74

TR-1315-74

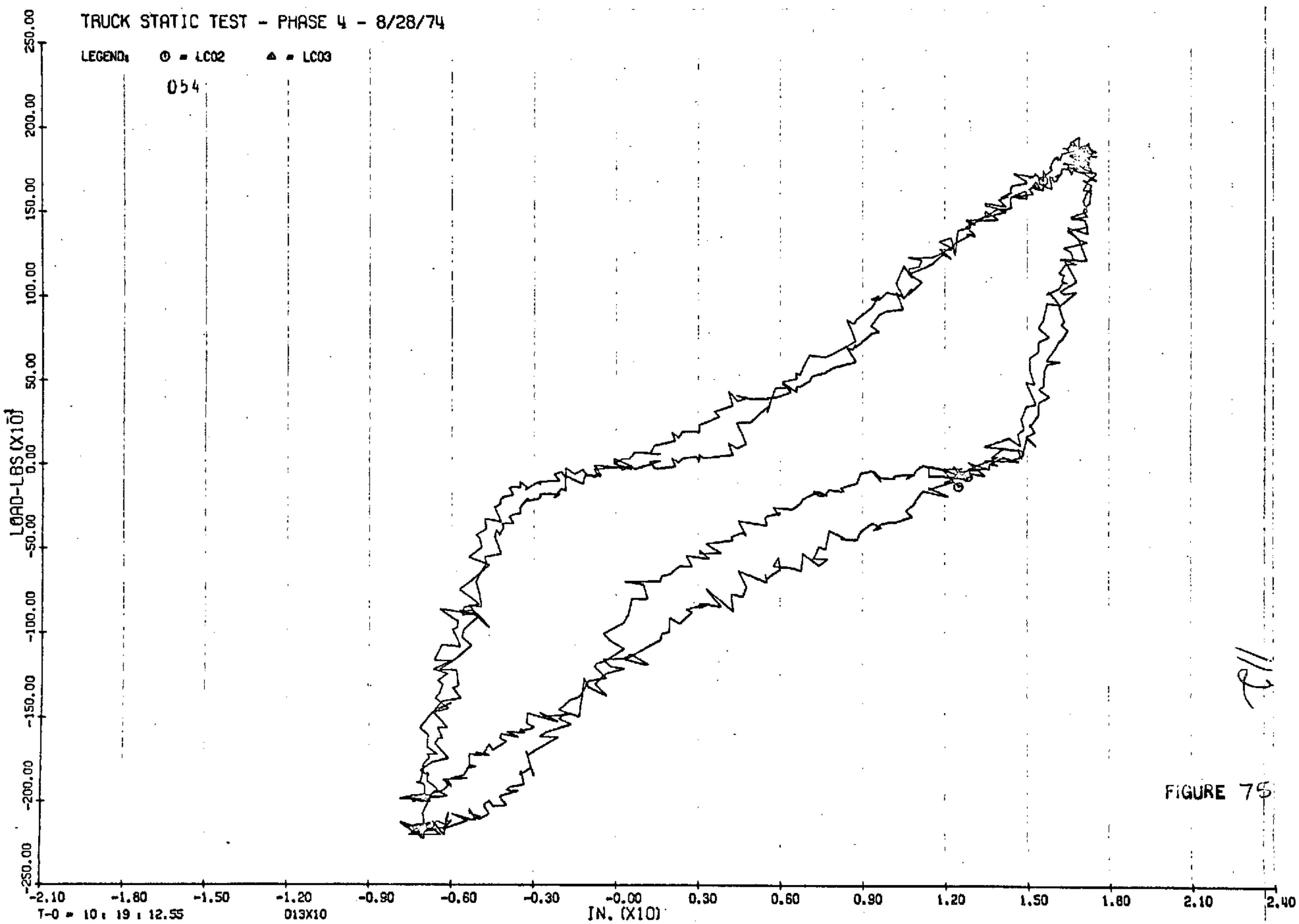
TRUCK STATIC TEST - PHASE 4 - 8/28/74
LEGEND: ⊙ = LC02 △ = LC03
054
LOAD-LBS (X10³)
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
2.40
IN. (X10)
T-0 = 10 : 19 : 12.55
013X10

FIGURE 75

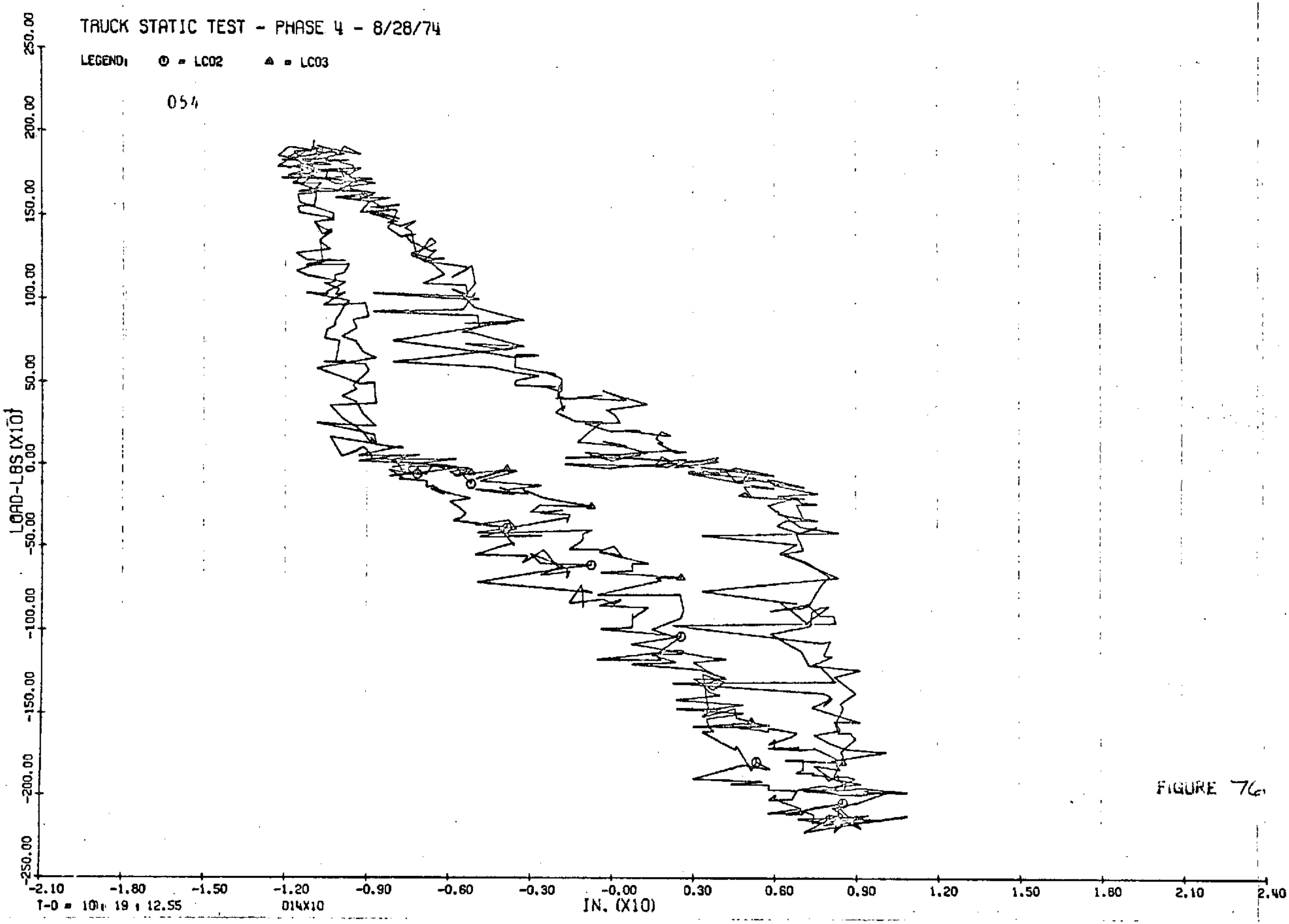

FIGURE 76

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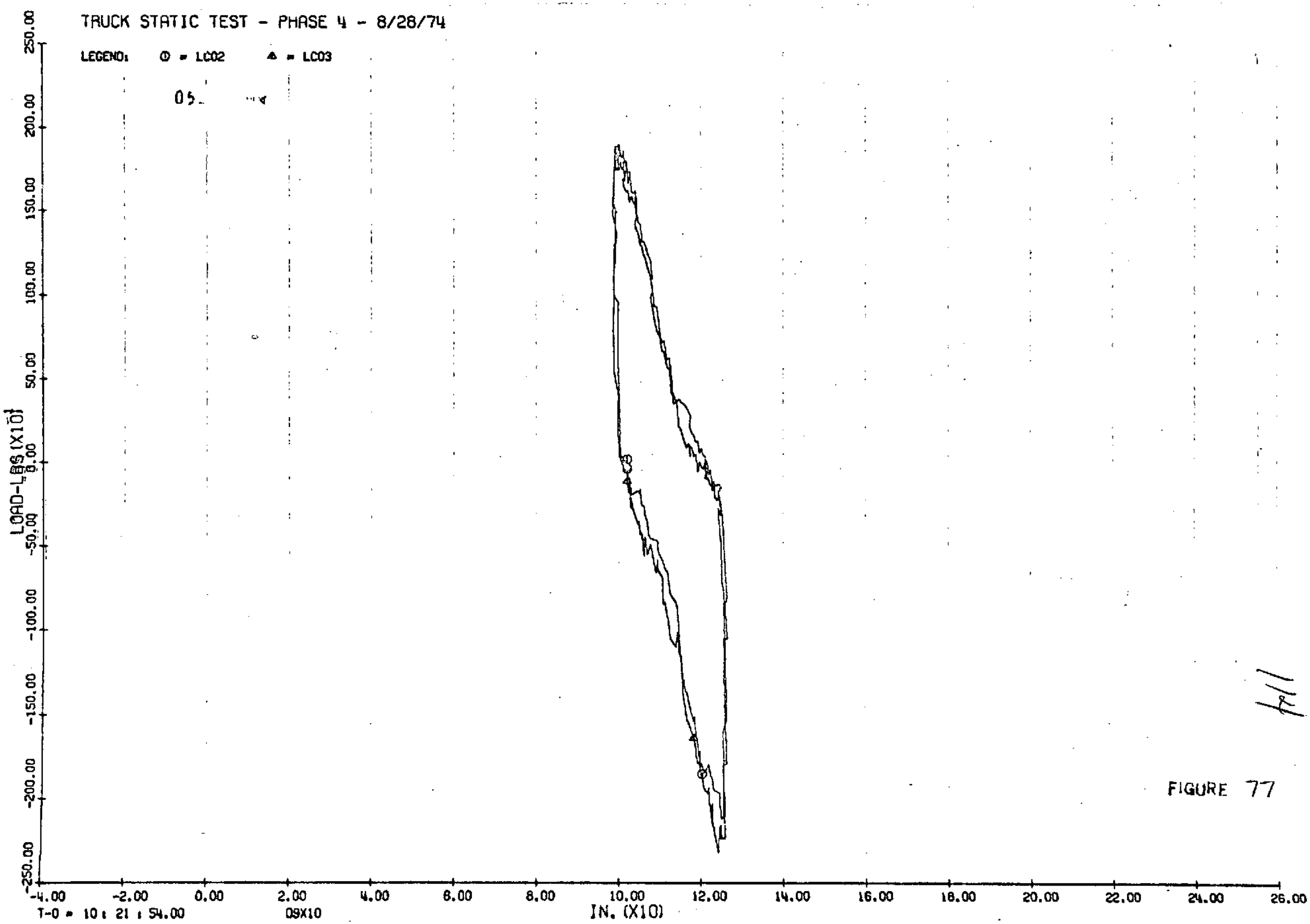

TRUCK STATIC TEST - PHASE 4 - 8/28/74
LEGEND: ⊙ = LC02 △ = LC03
LOAD-LBS (X10¹)
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-4.00
-2.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
IN. (X10)
T-0 = 10 : 21 : 54.00
09X10

FIGURE 77

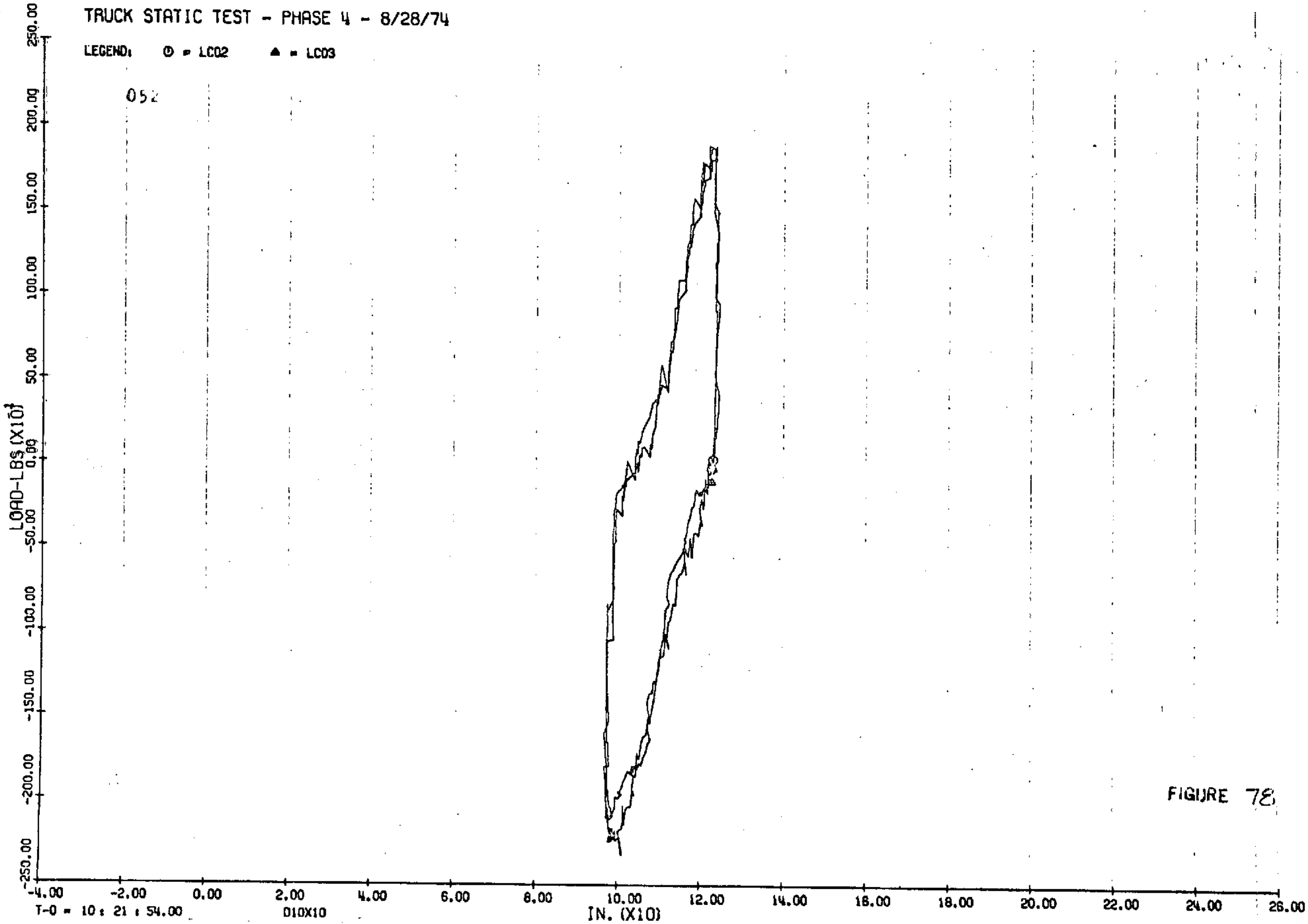


FIGURE 78

TR-131S-74

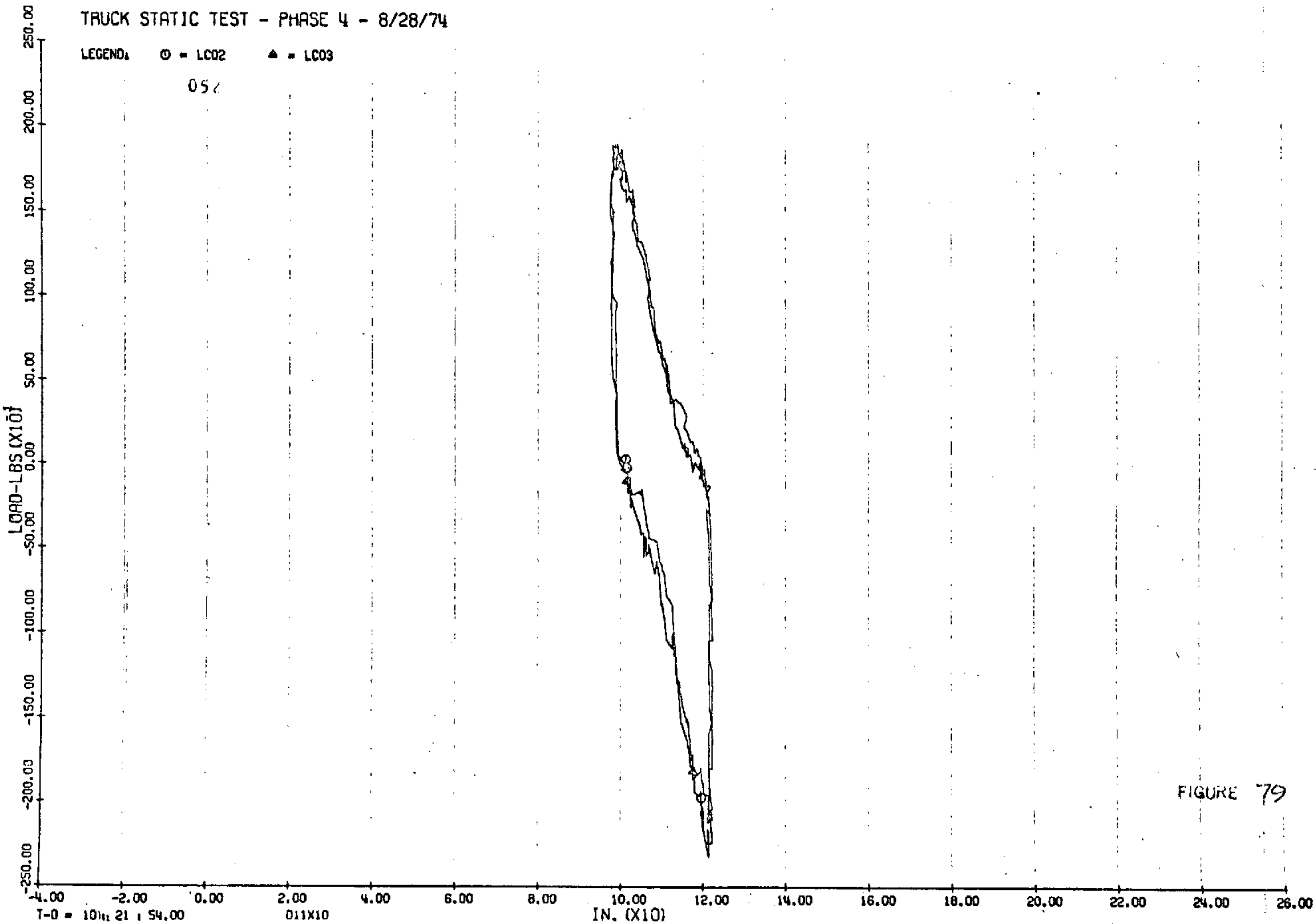


FIGURE 79

YR 1315-74

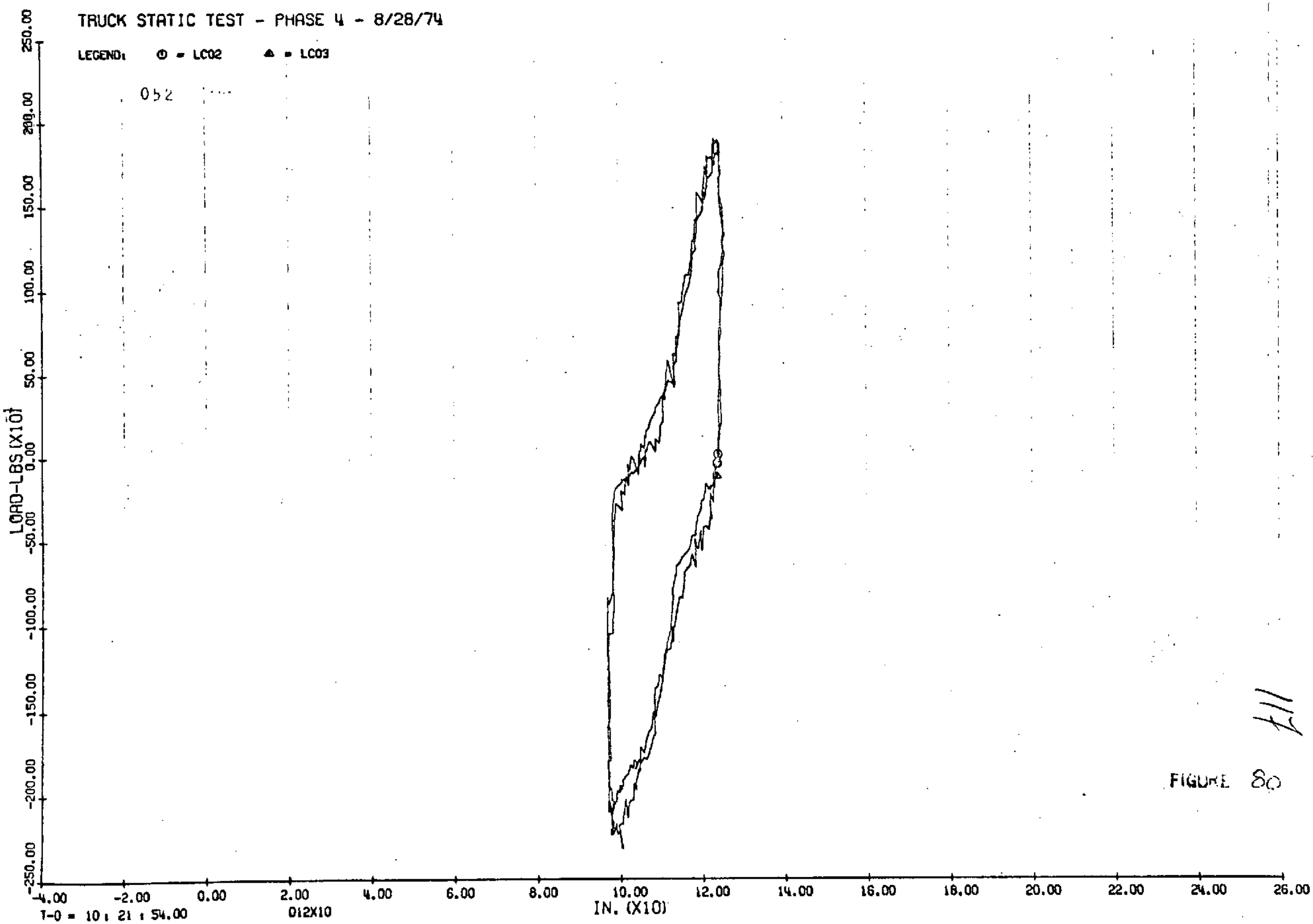
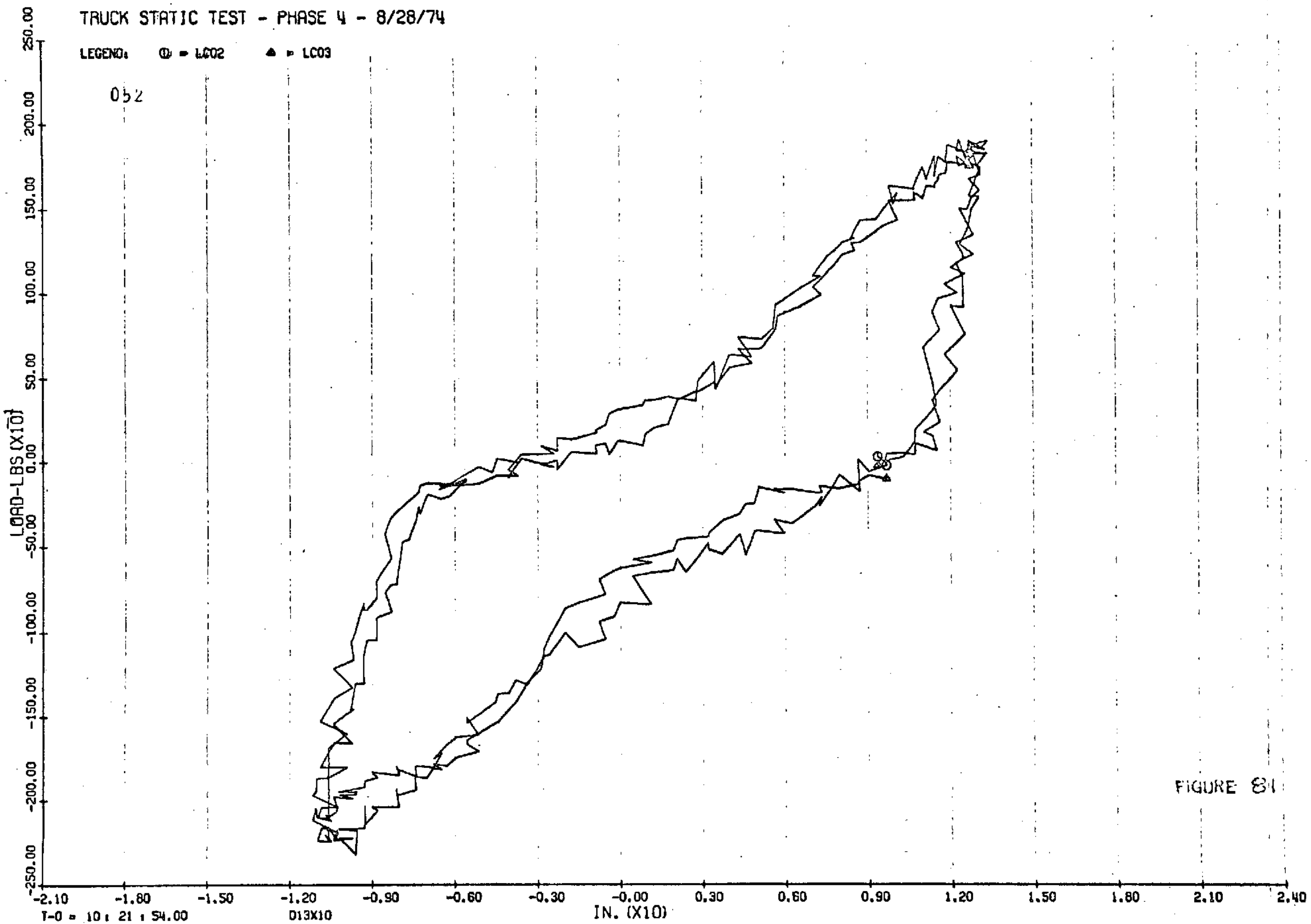


FIGURE 80

117



TRUCK STATIC TEST - PHASE 4 - 8/28/74
LEGEND: ⊕ = LC02 ▲ = LC03
052
LOAD-LBS (X10¹)
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
2.40
IN. (X10)
T-0 = 10 : 21 : 54.00
D13X10

FIGURE 81

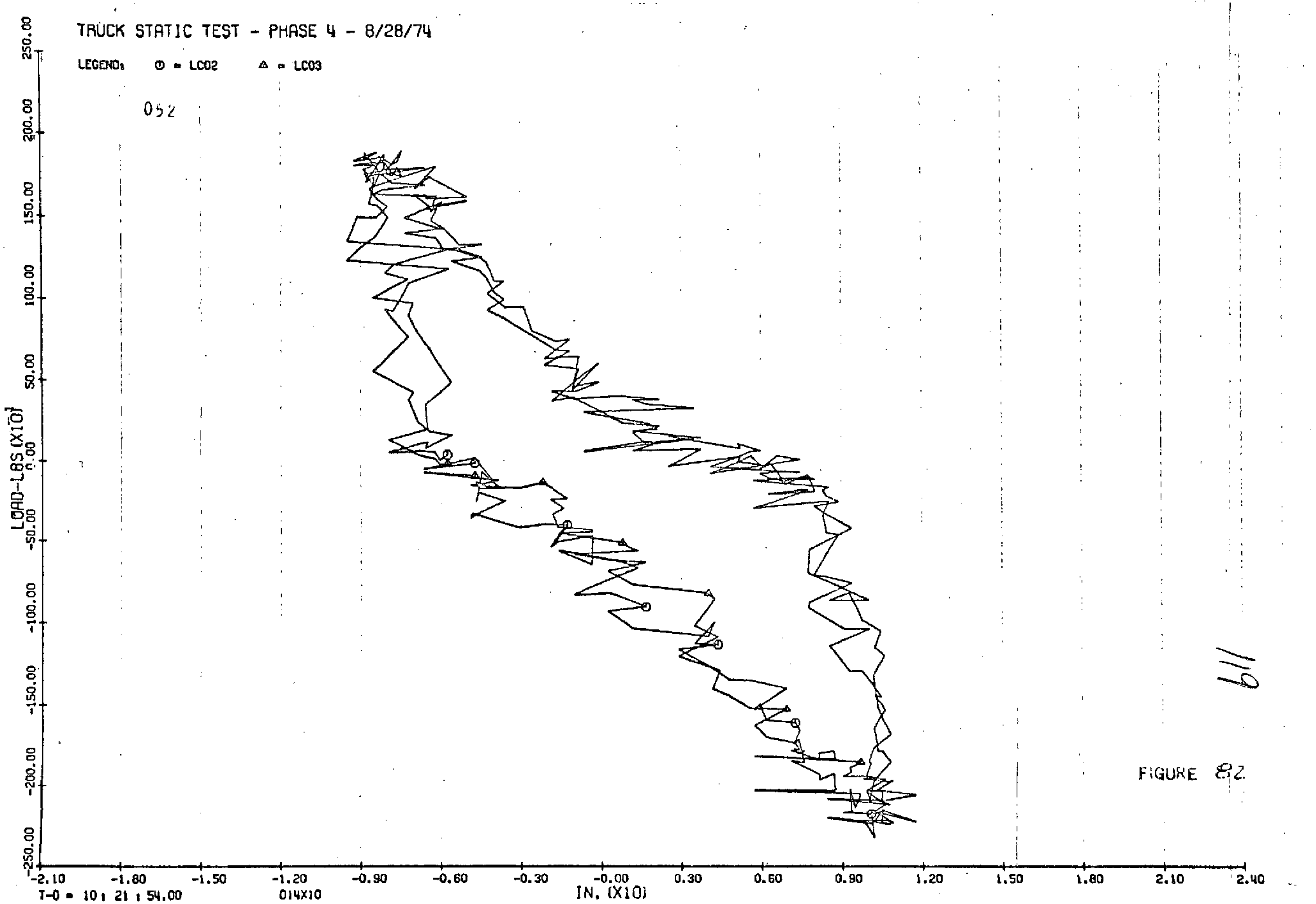


FIGURE 82

119

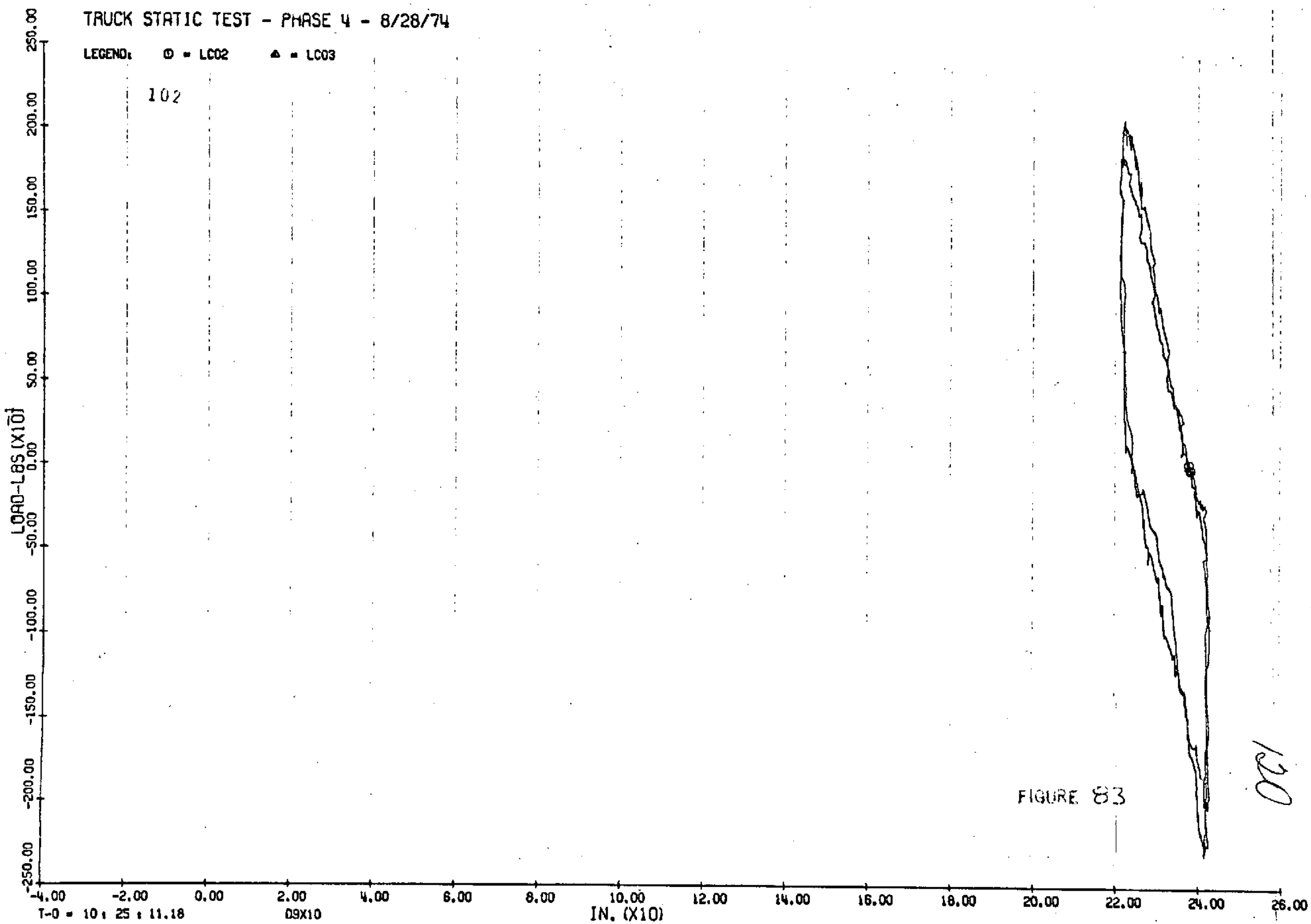


FIGURE 83

120

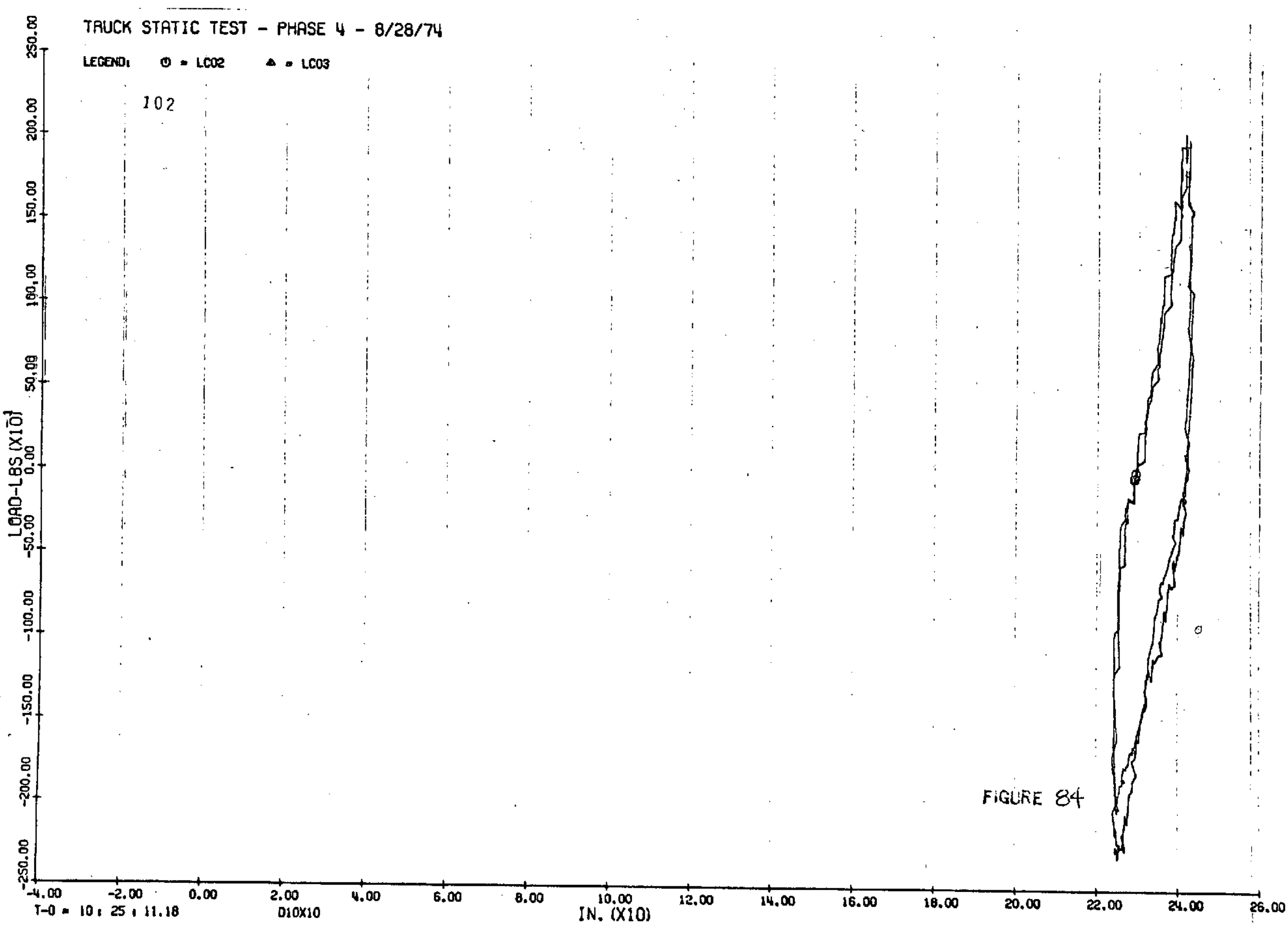


FIGURE 84

TR-131S-74

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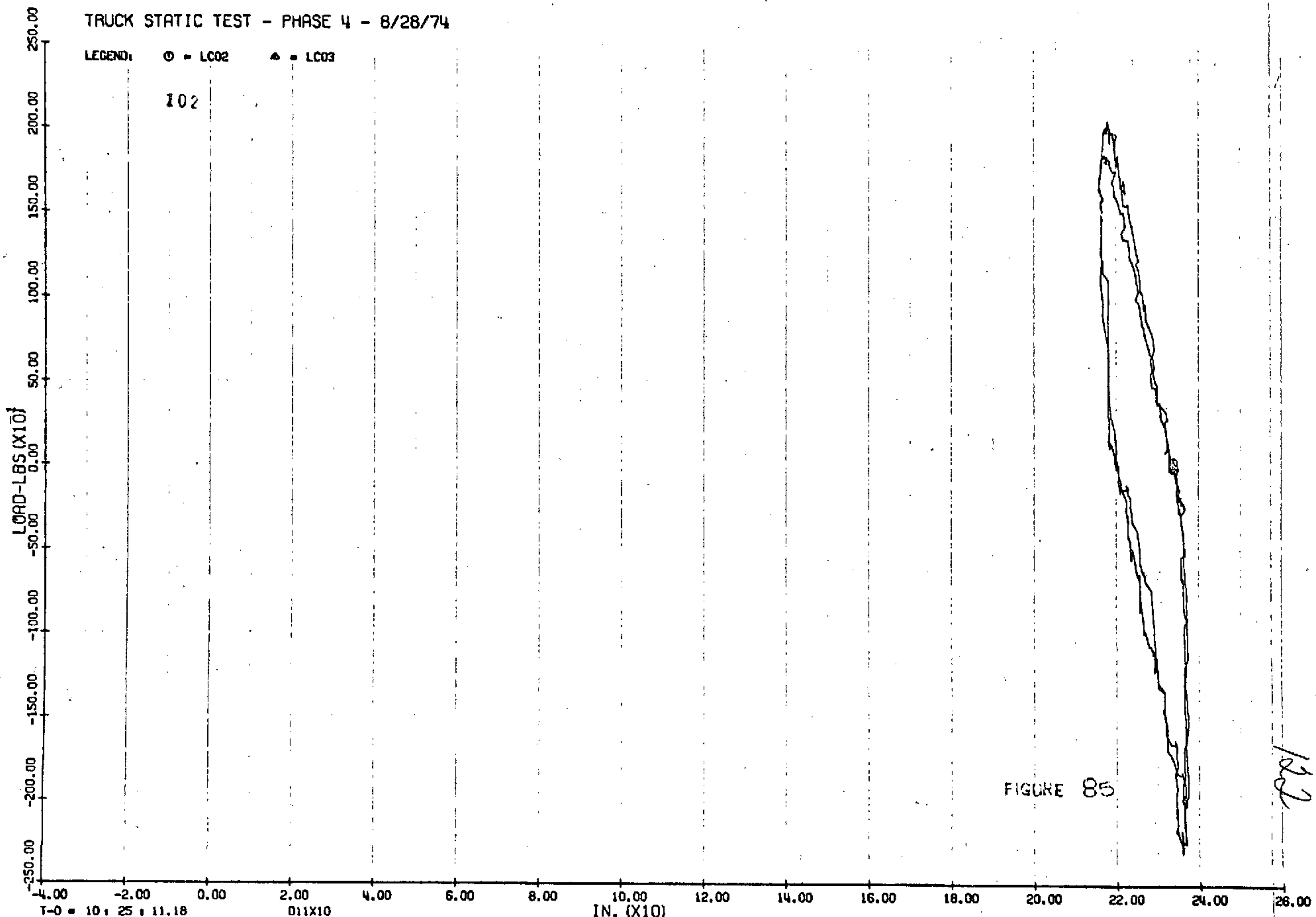


FIGURE 85

122

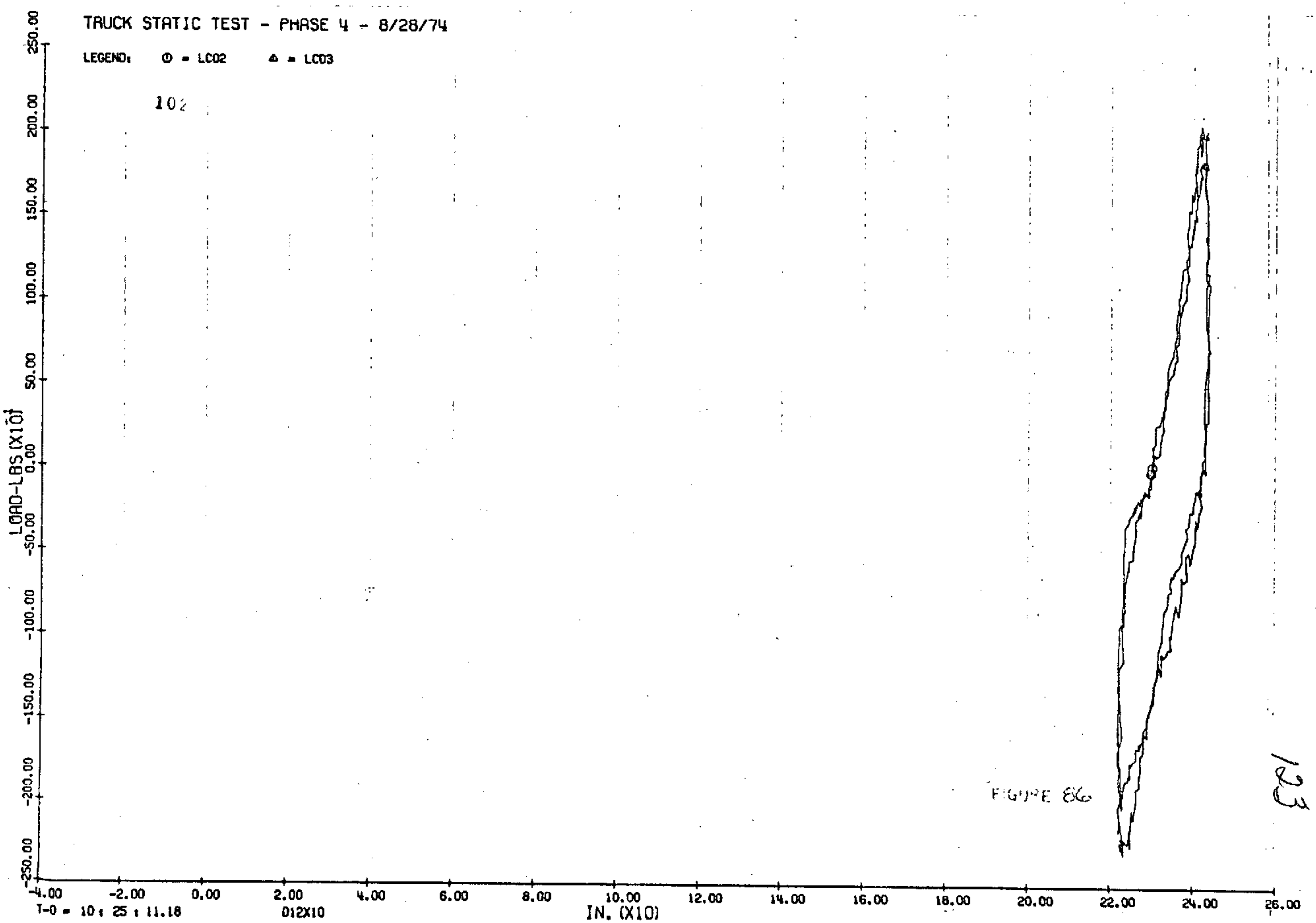


FIGURE 86

123

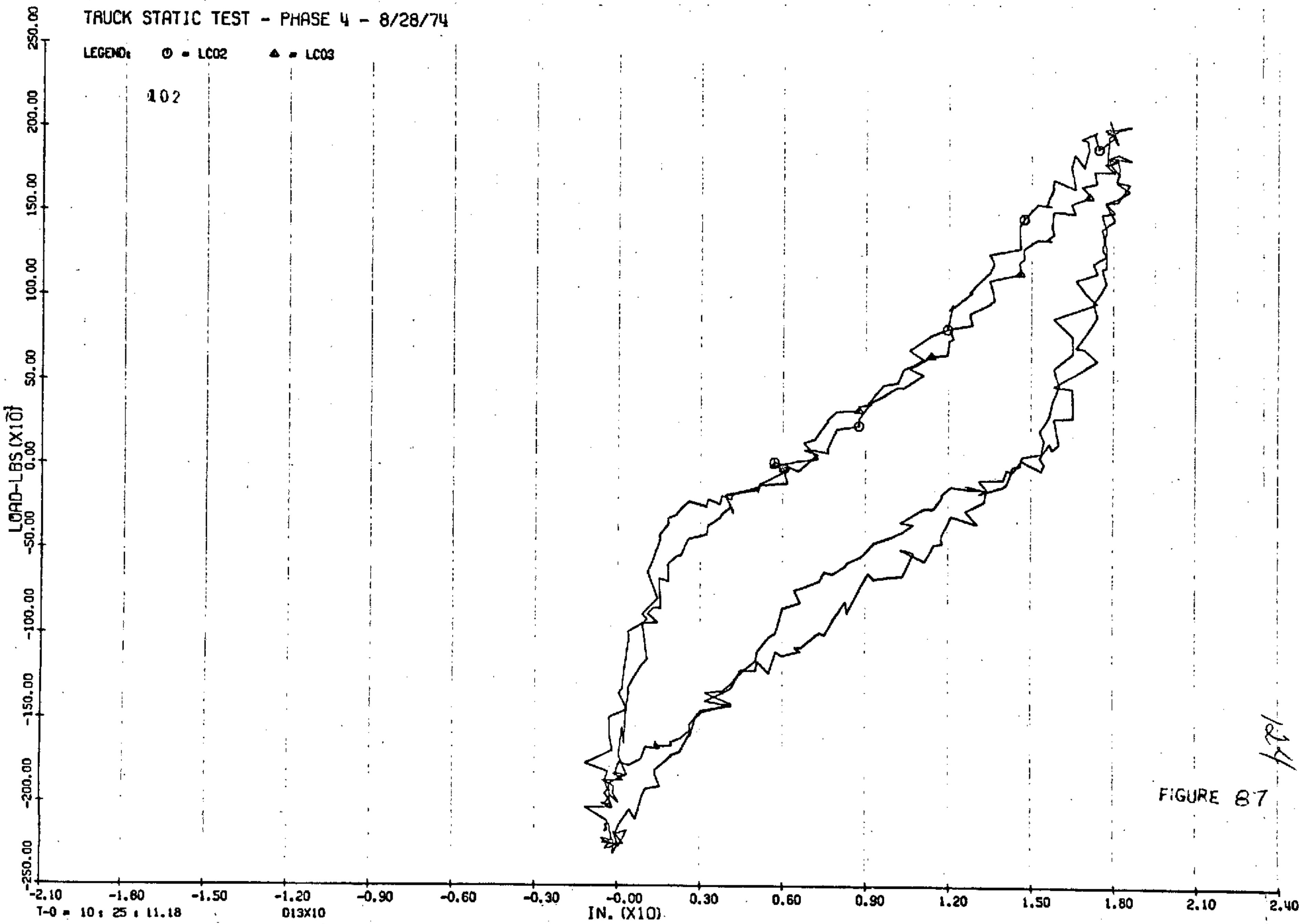

TRUCK STATIC TEST - PHASE 4 - 8/28/74
LEGEND: ⊙ = LC02 ▲ = LC03
102
LOAD-LBS (X10¹)
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
2.40
IN. (X10)
T-0 = 10 : 25 : 11.18
D13X10

FIGURE 87

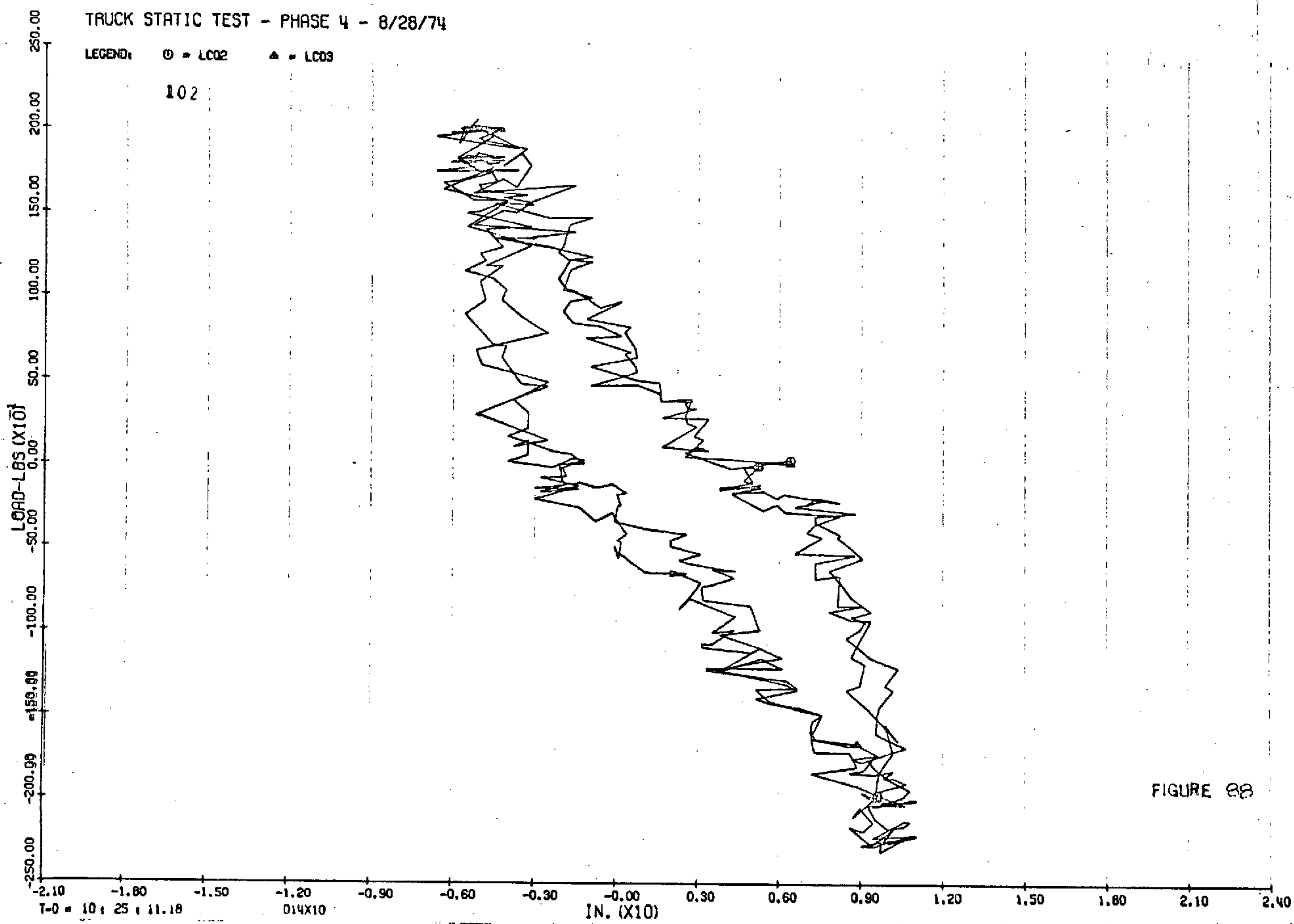


FIGURE 88

TR-131S-74

TRUCK STATIC TEST - PHASE 4 - 8/28/74

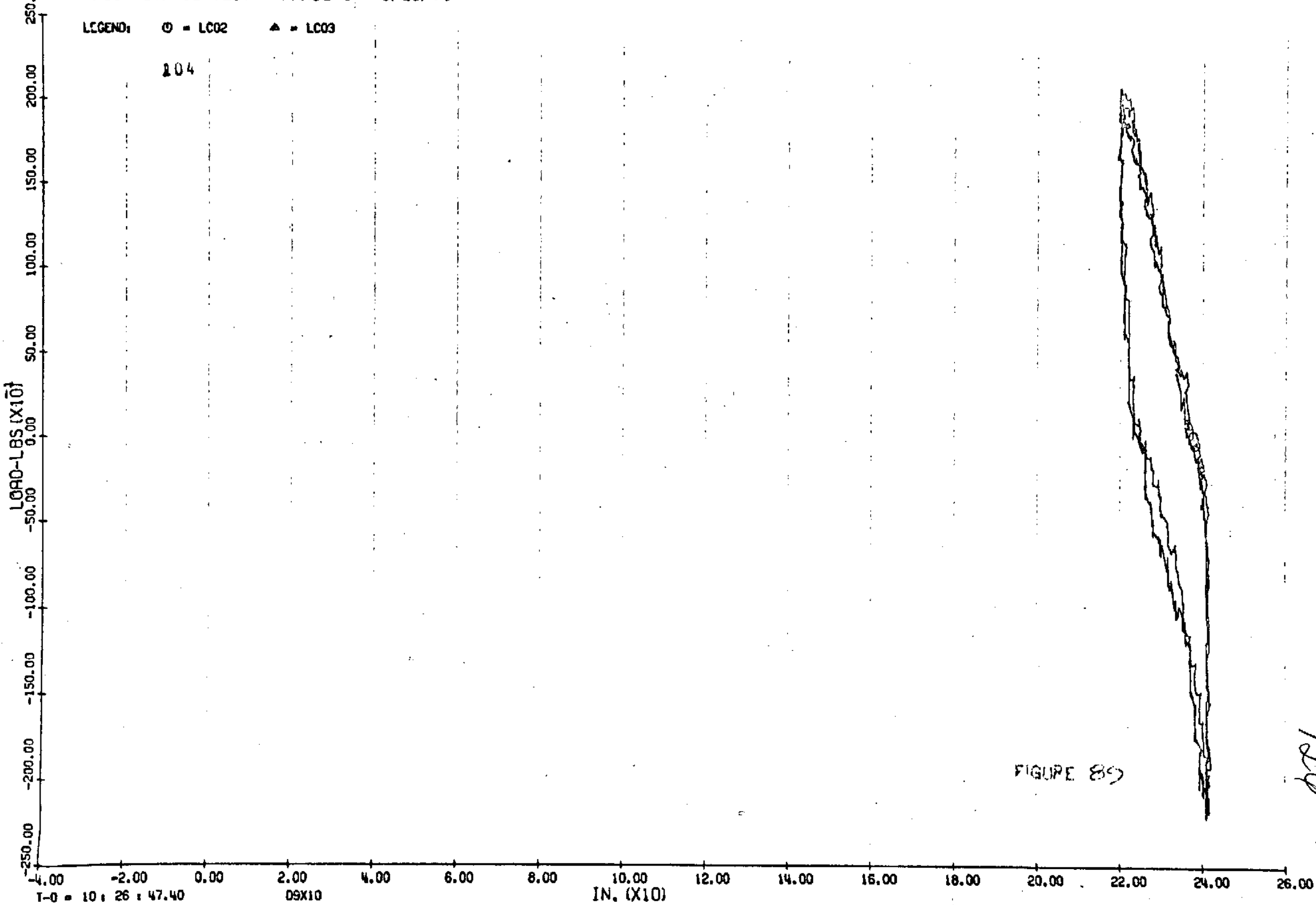


FIGURE 89

129

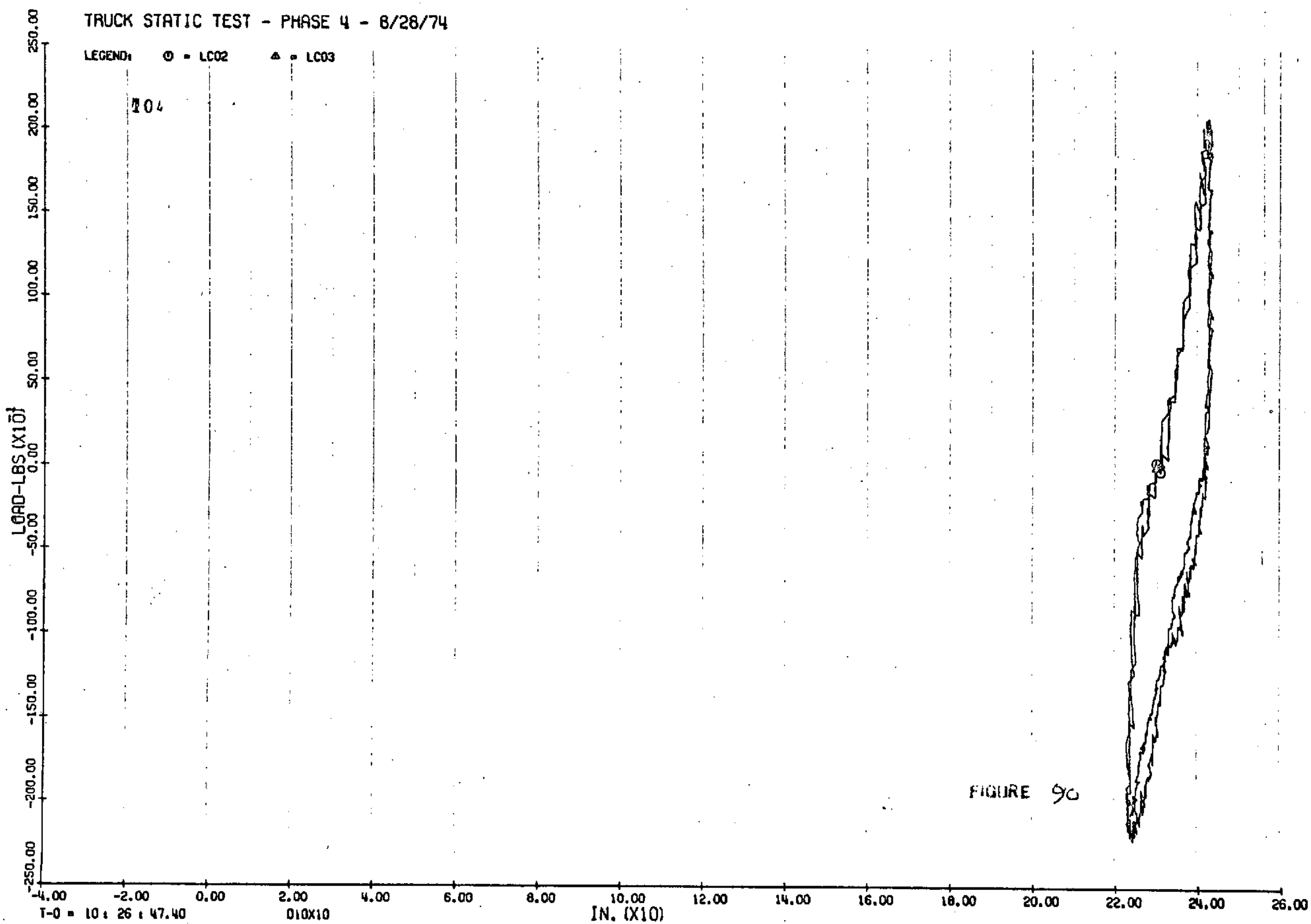


FIGURE 90

TR-131S-74

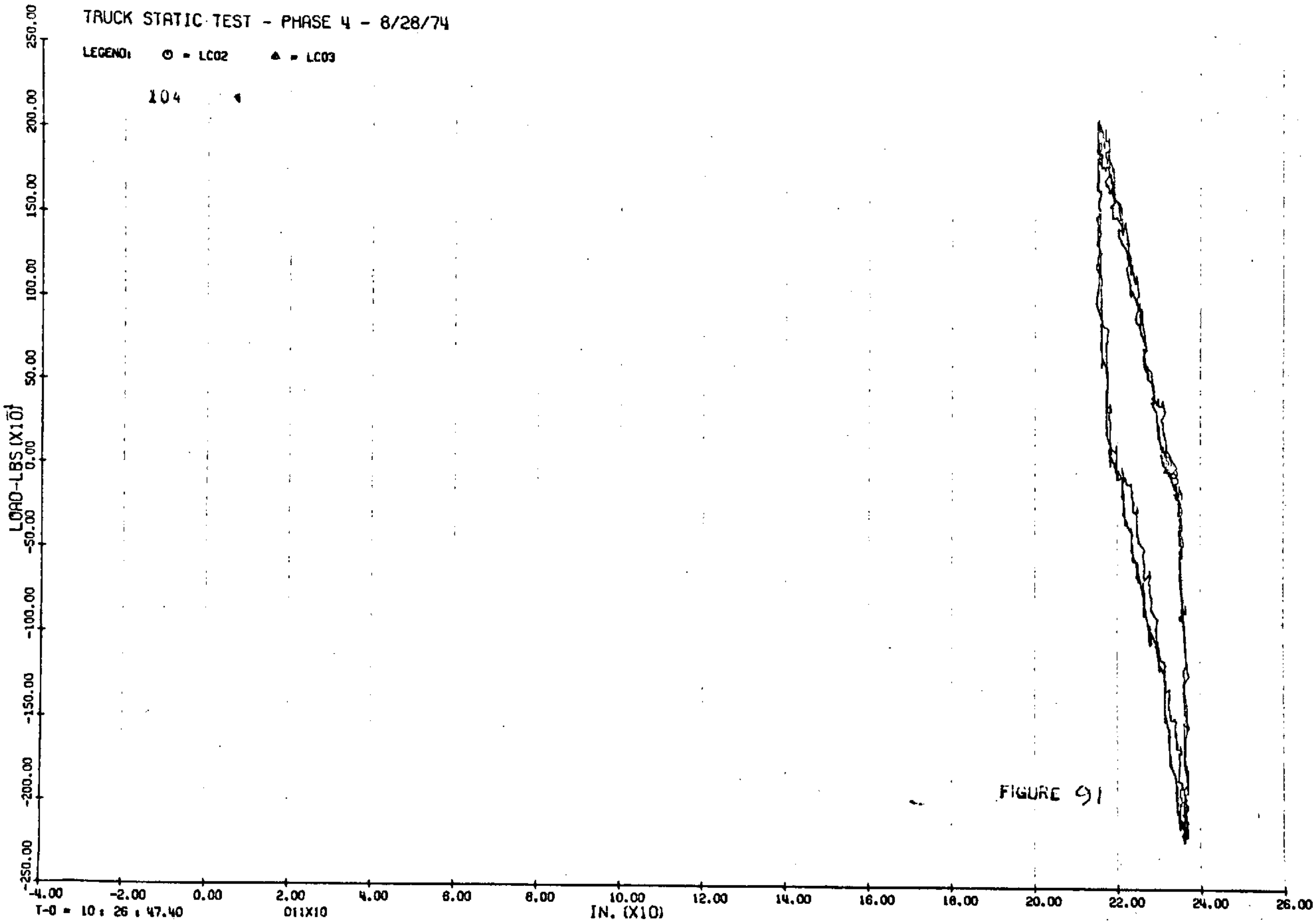


FIGURE 91

TR.131S-74

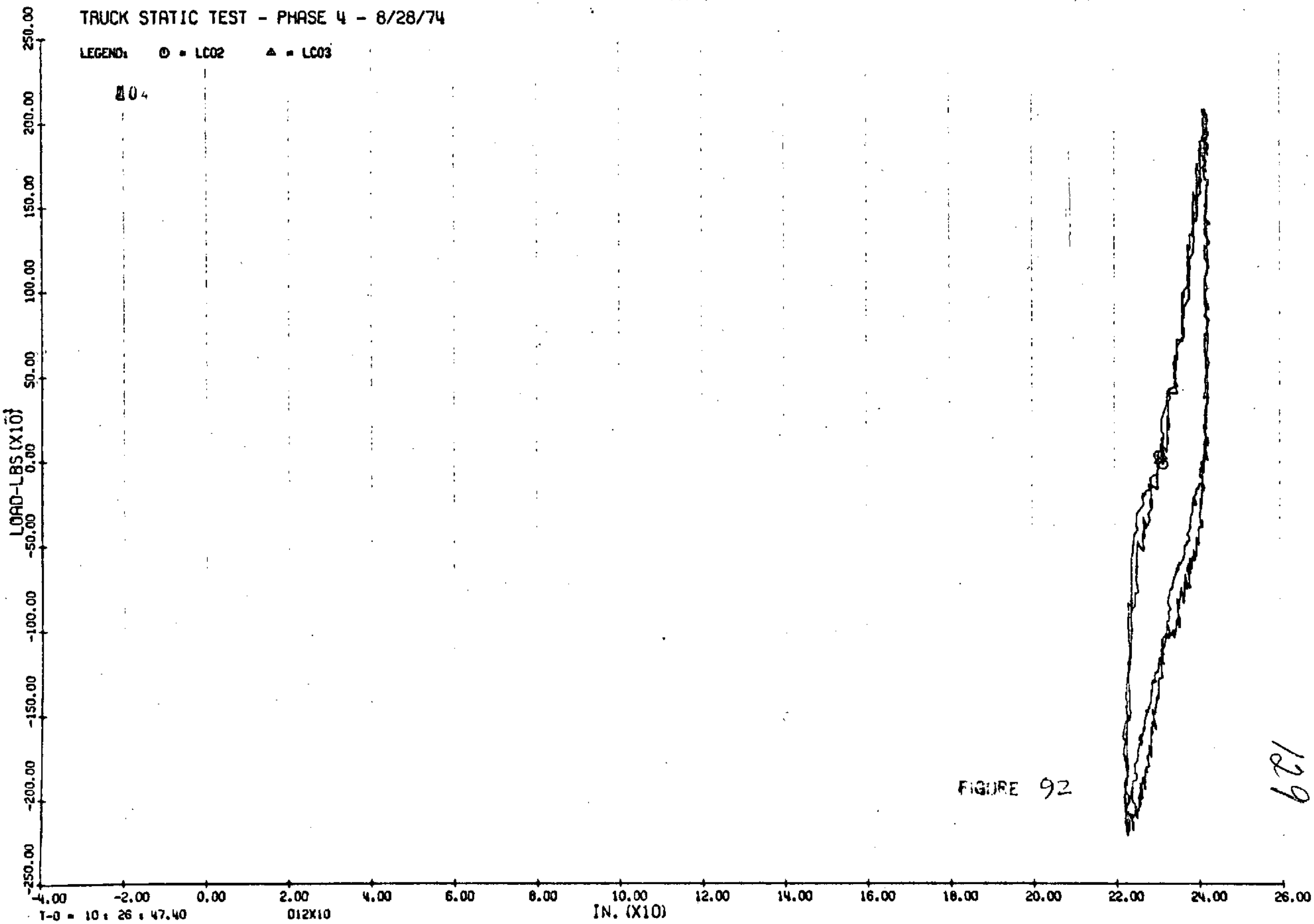


FIGURE 92

129

TRUCK STATIC TEST - PHASE 4 - 8/28/74

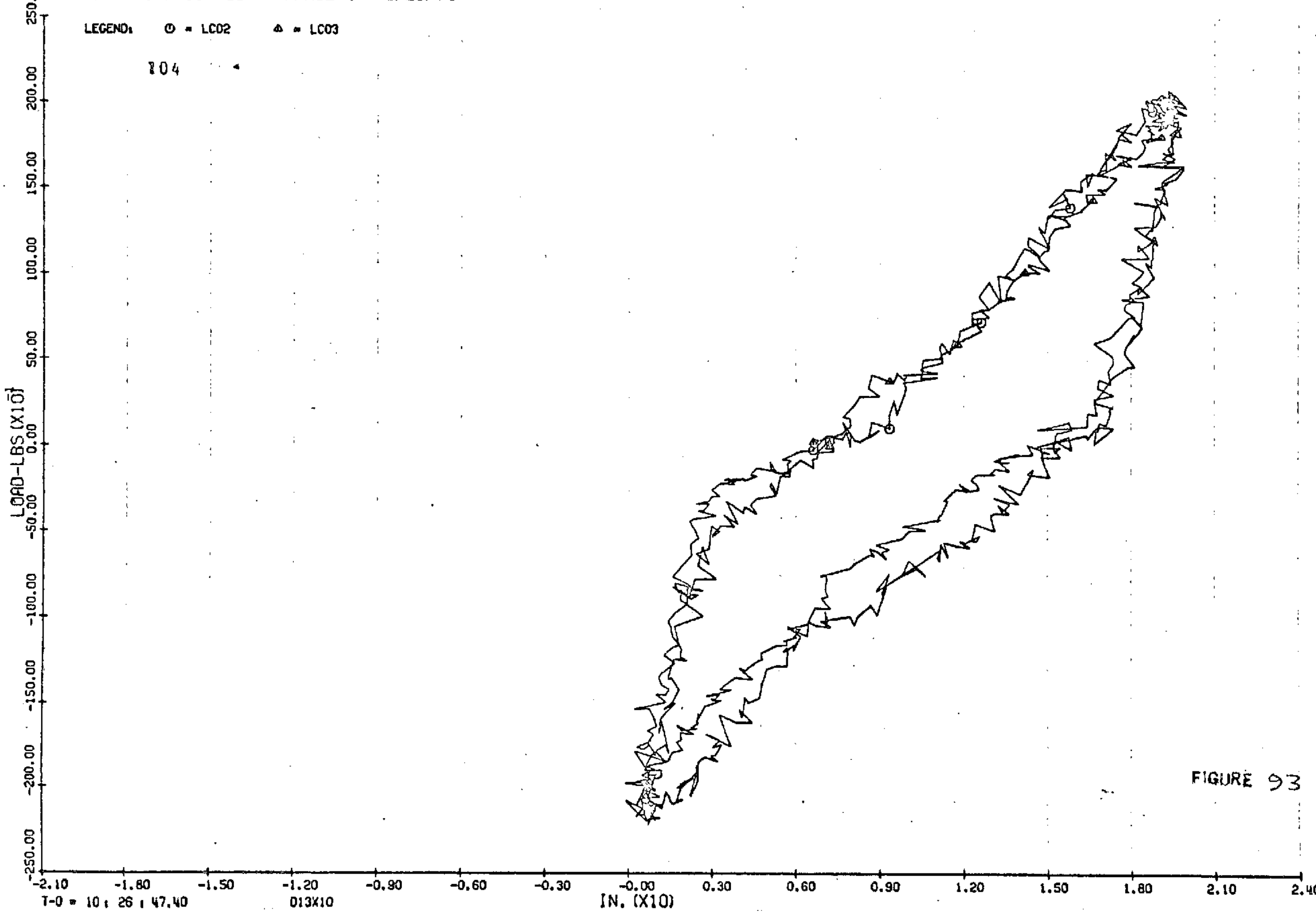


FIGURE 93

TR-1315-74

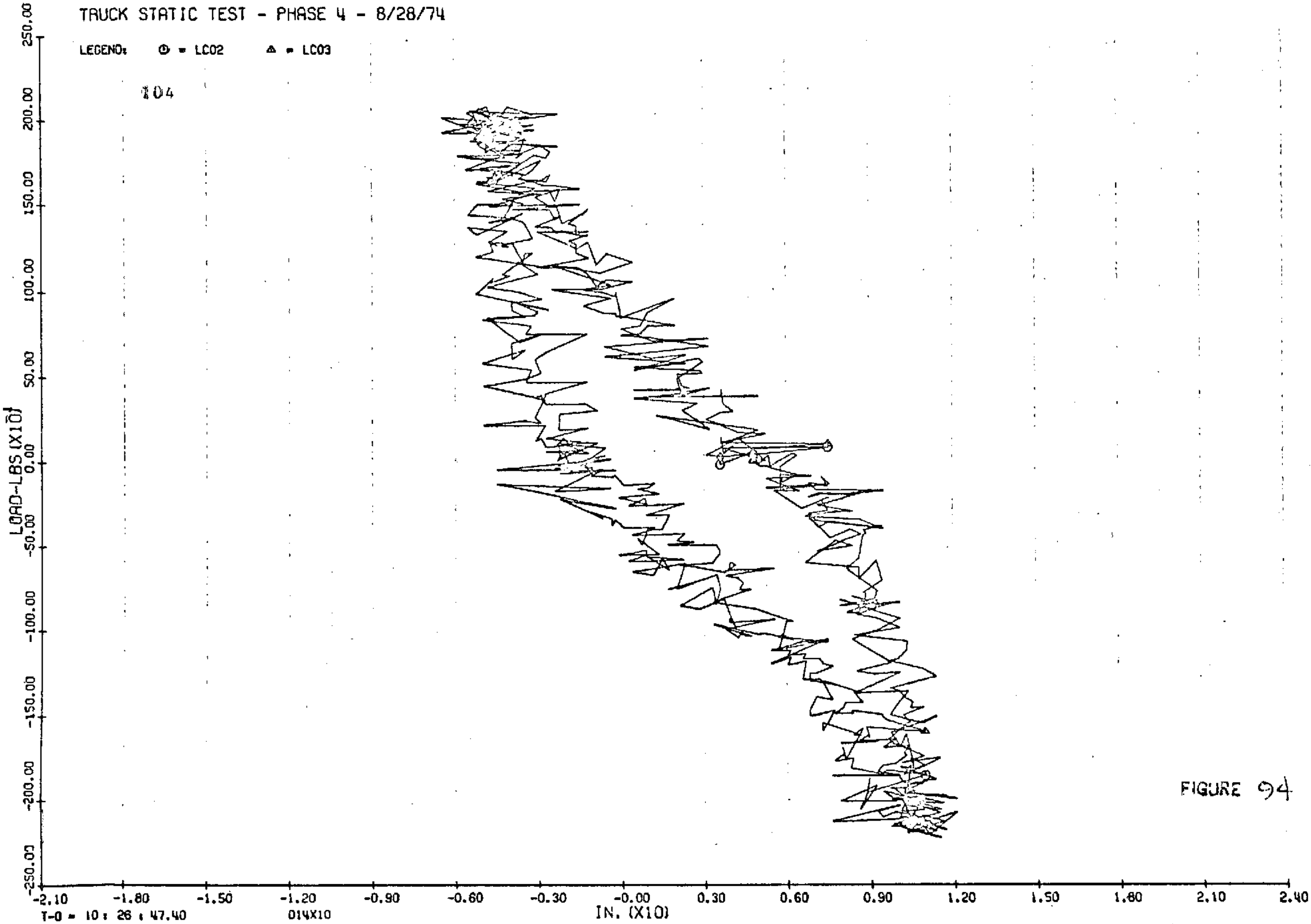
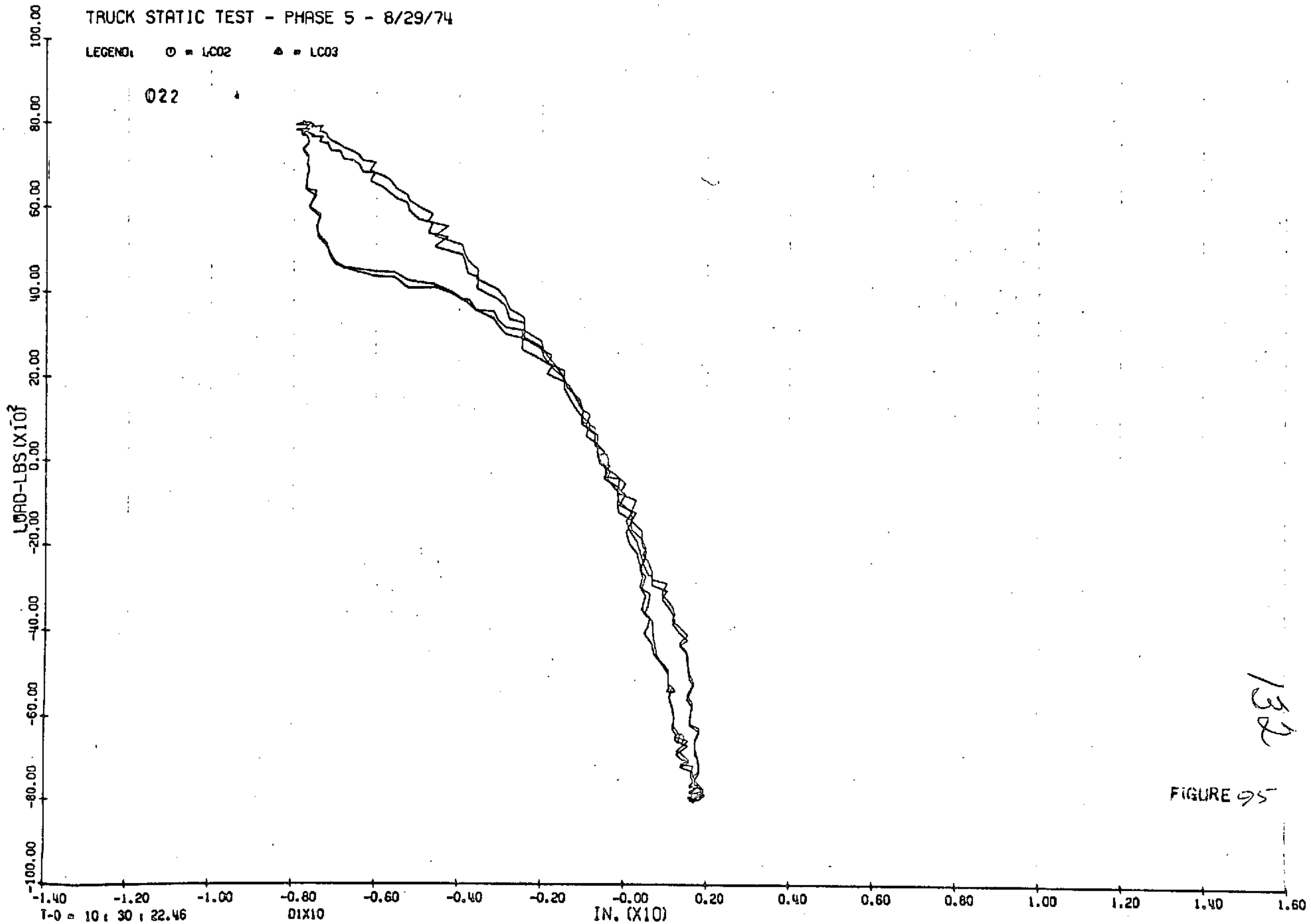
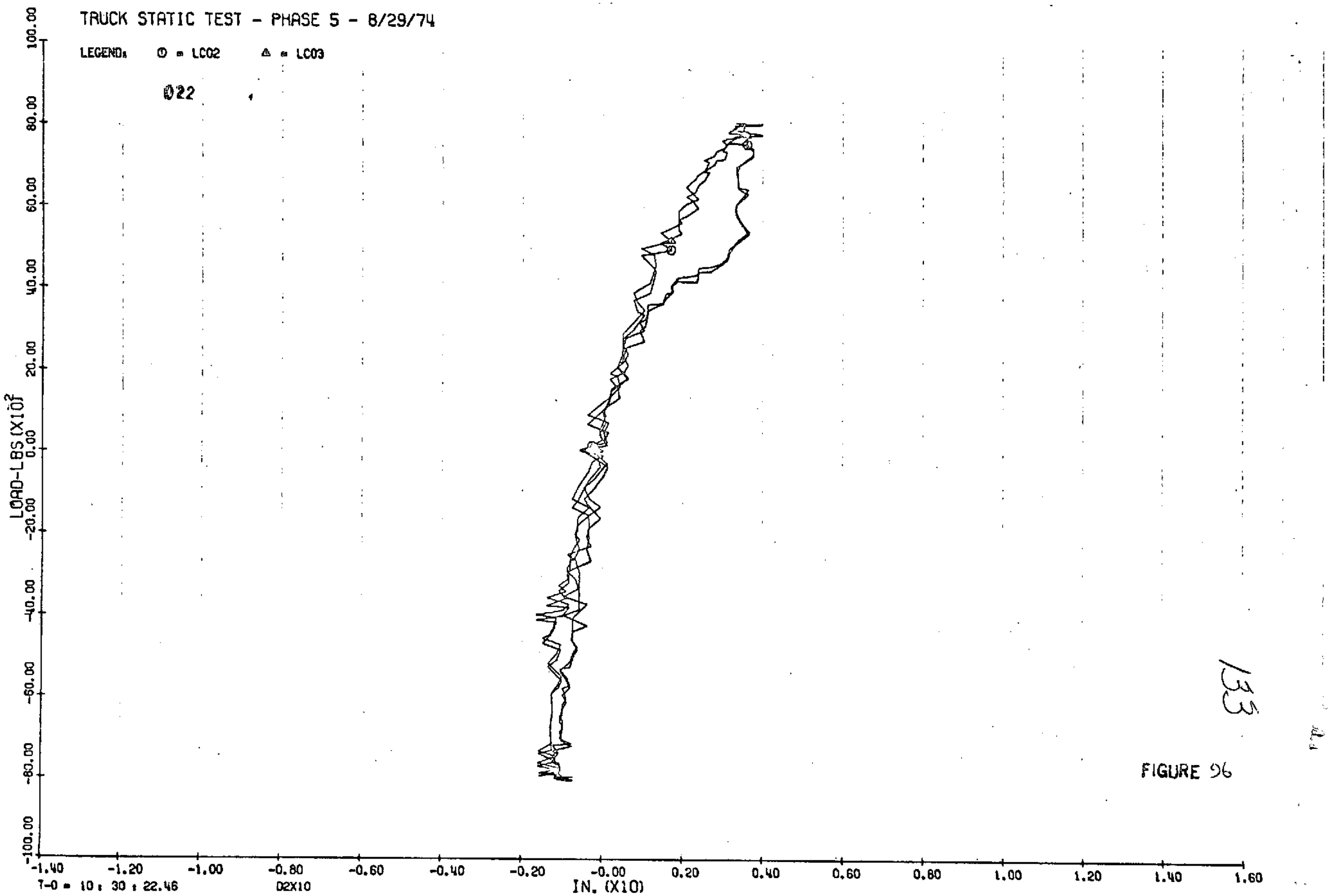

TRUCK STATIC TEST - PHASE 4 - 8/28/74
LEGEND: ⊕ = LC02 △ = LC03
104
LOAD-LBS (X10¹)
250.00
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
2.40
IN. (X10)
T-0 = 10 : 26 : 47.40
014X10

FIGURE 94


TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
022
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 30 : 22.46
DIX10
IN. (X10)
132
FIGURE 95



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
022
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 30 : 22.46
D2X10
IN. (X10)
133

FIGURE 96

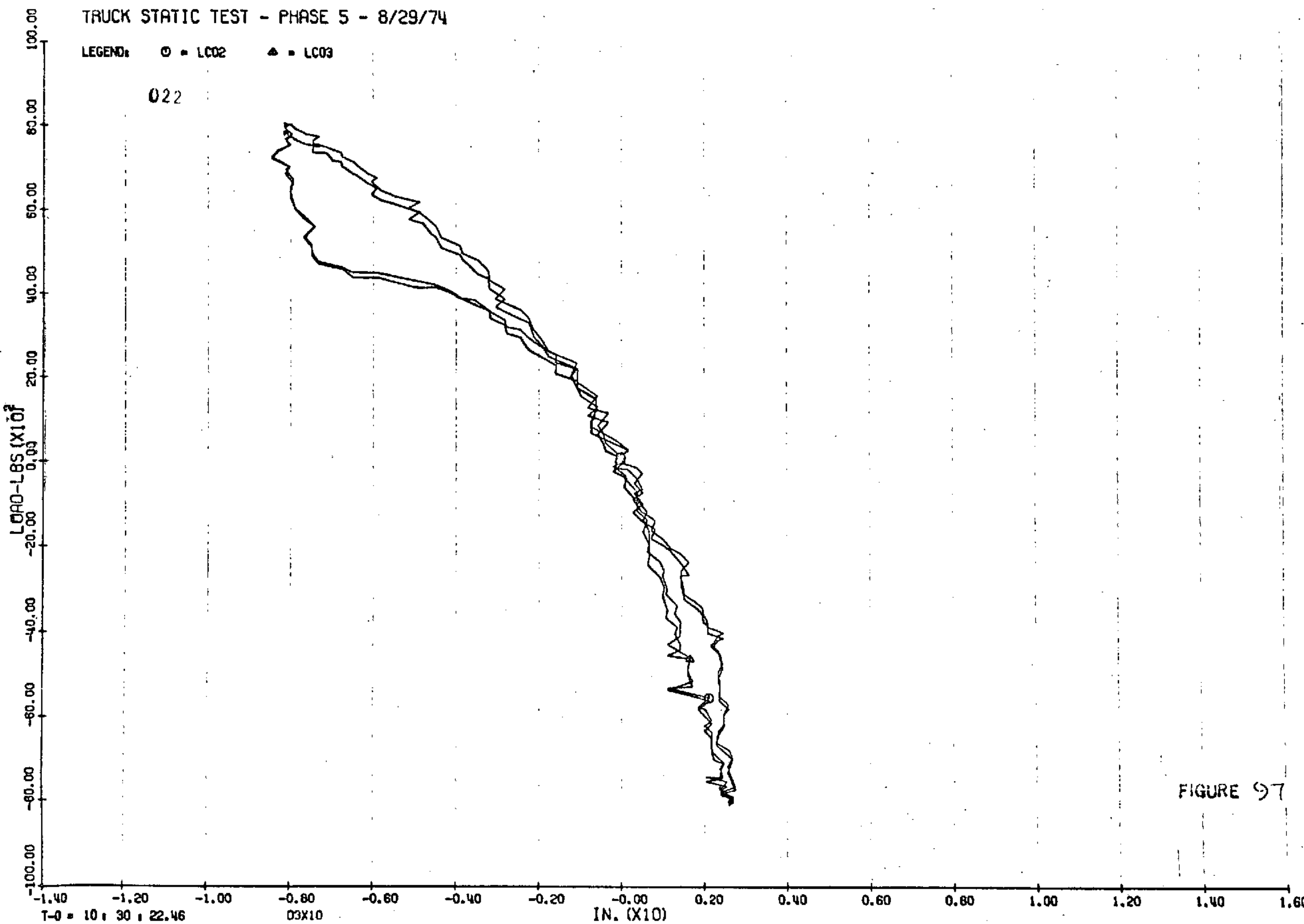


FIGURE 97

TR-131S-74

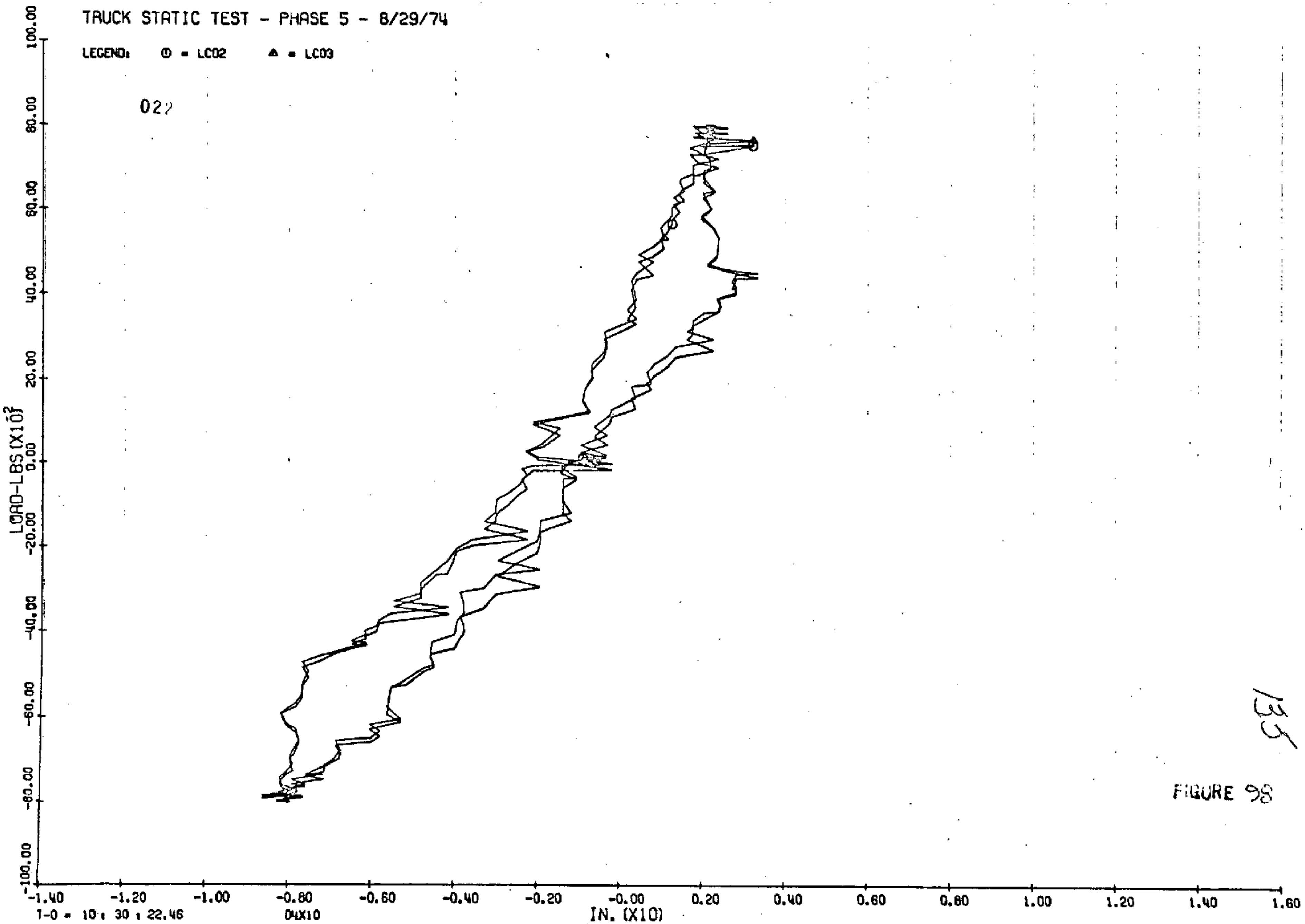


FIGURE 98

137

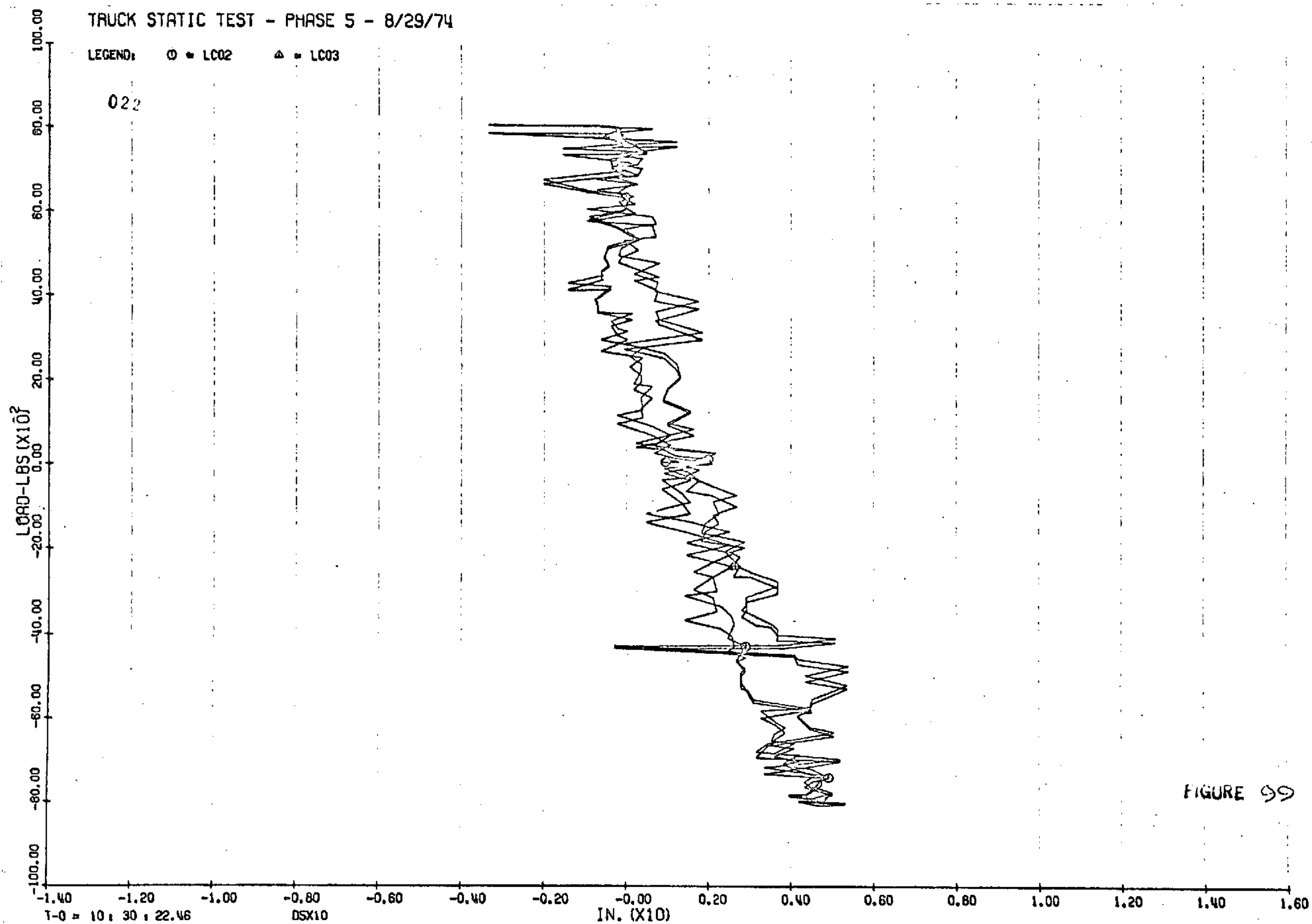

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
022
LOAD-LBS (X10^2)
IN. (X10)
T-0 = 10 : 30 : 22.46
DSX10
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60

FIGURE 99

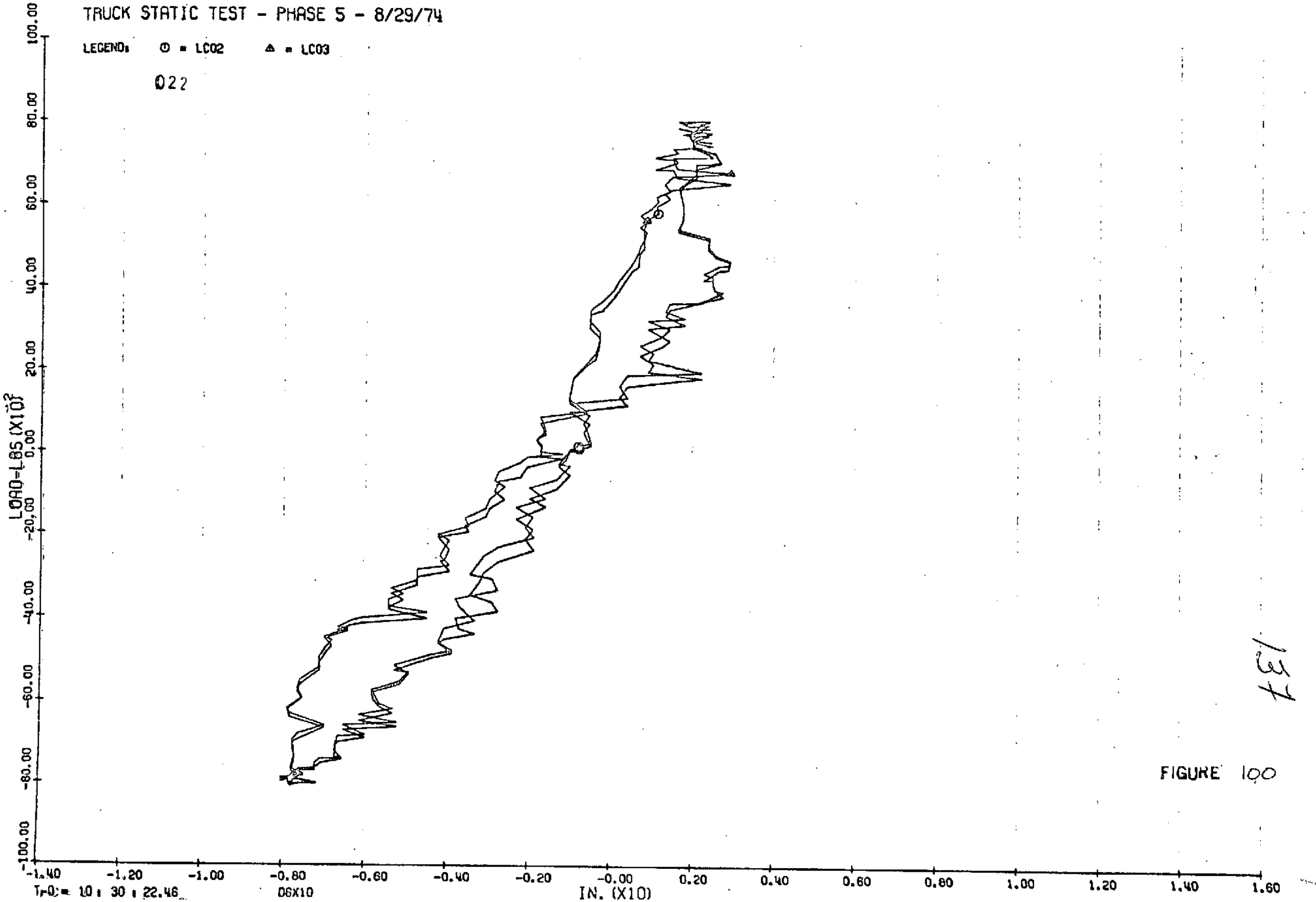


FIGURE 100

137

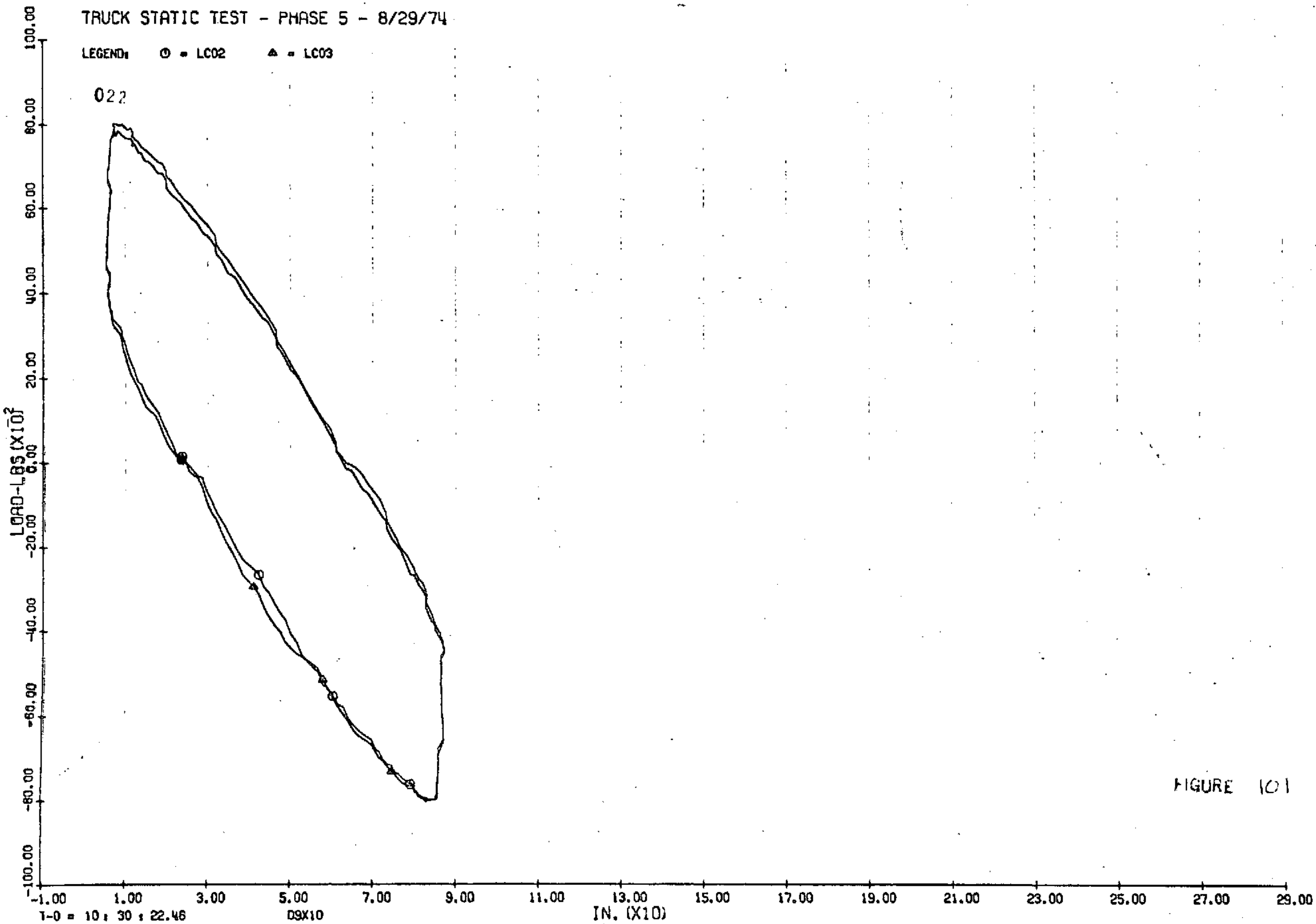


FIGURE 101

TR-131S-74

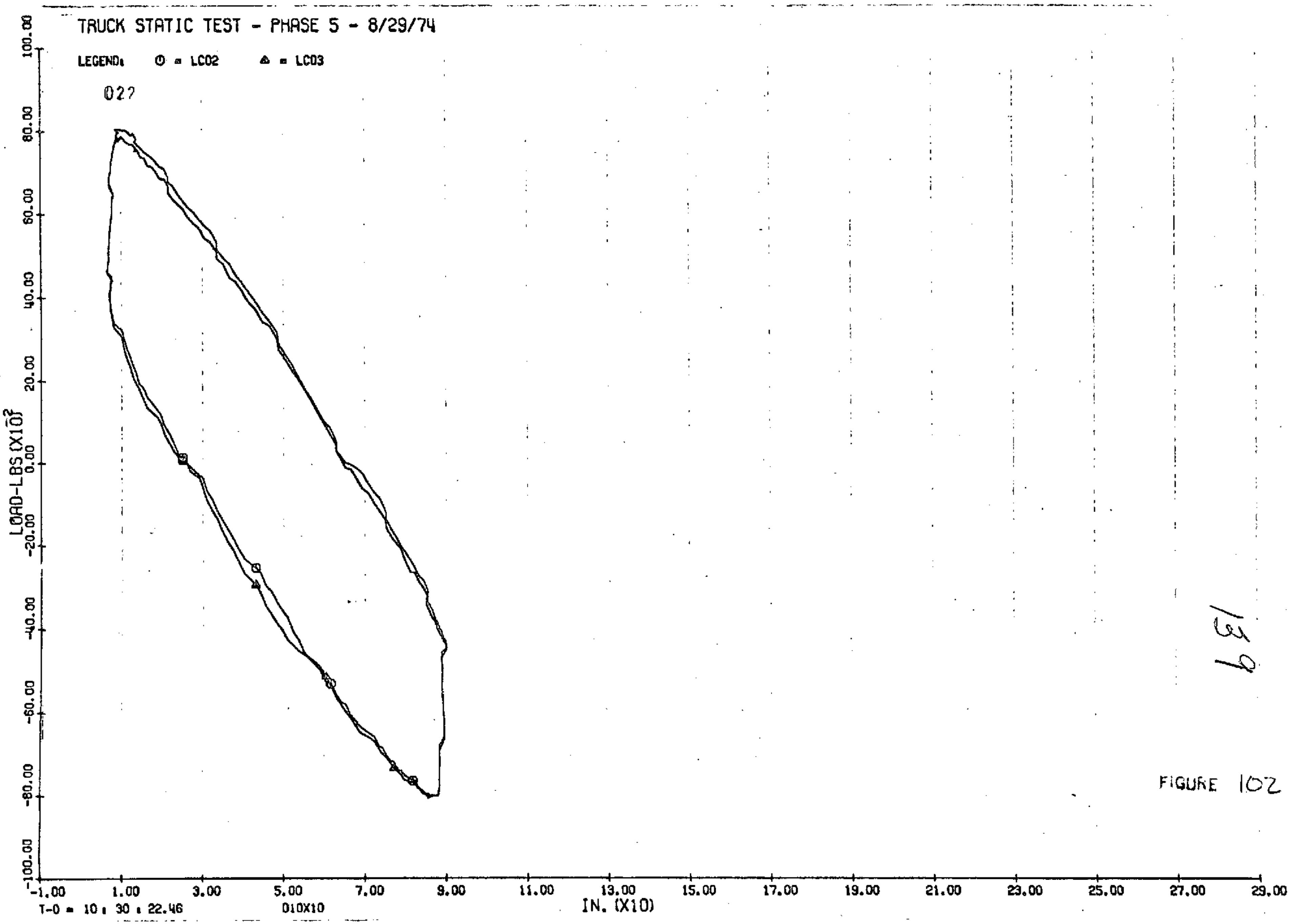
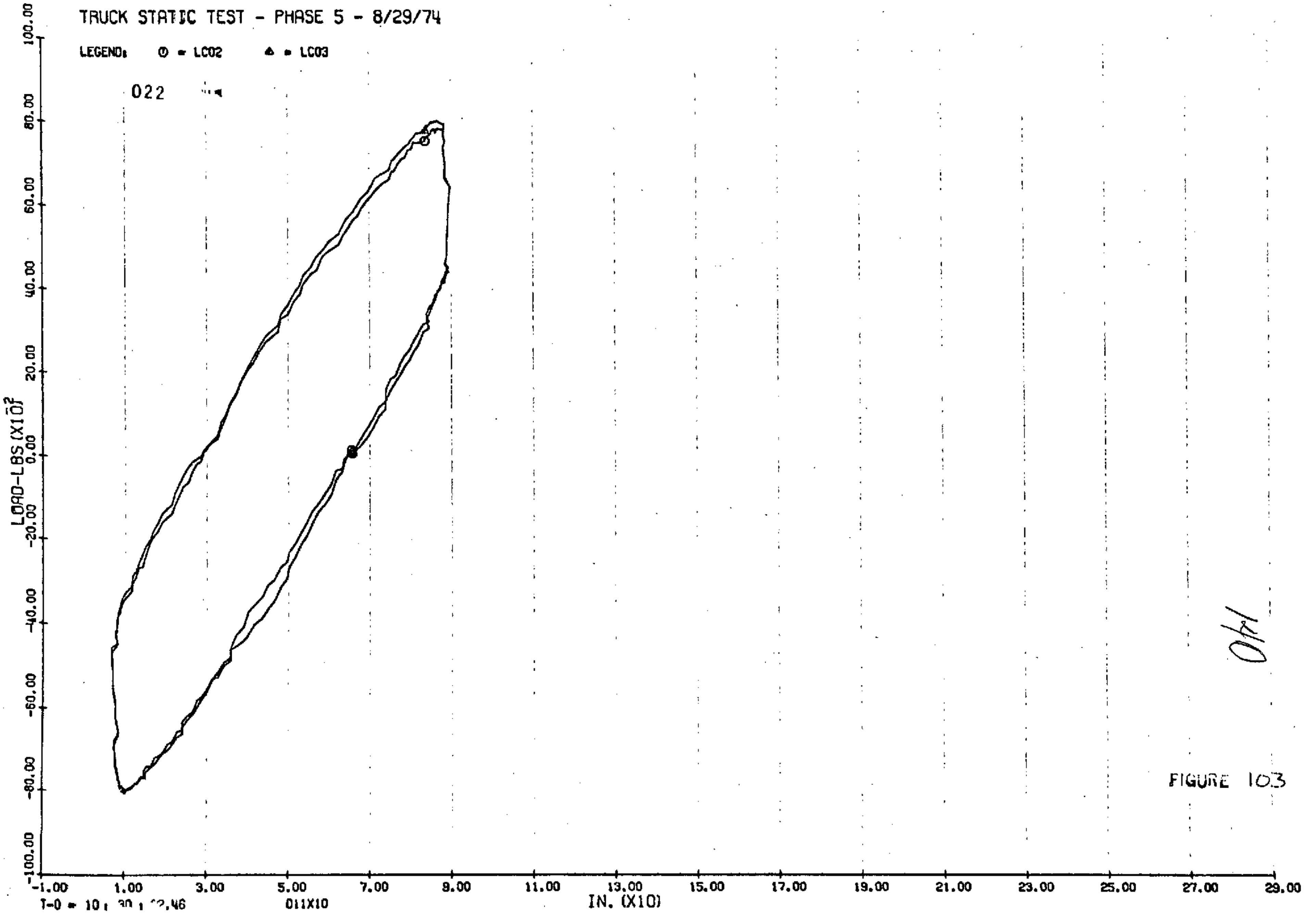


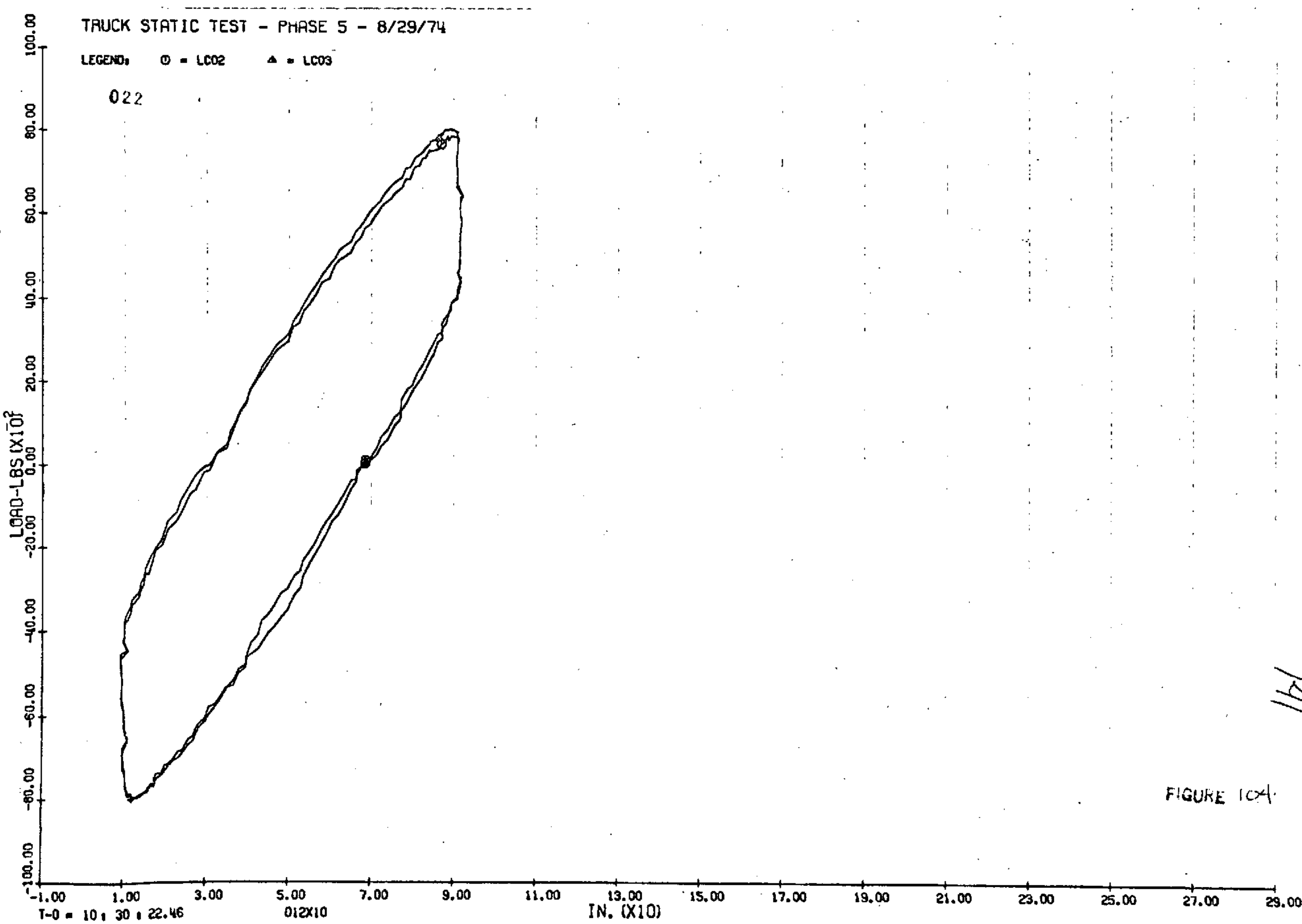
FIGURE 102

197



140

FIGURE 103



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
022
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 30 : 22.46
012X10

FIGURE 104

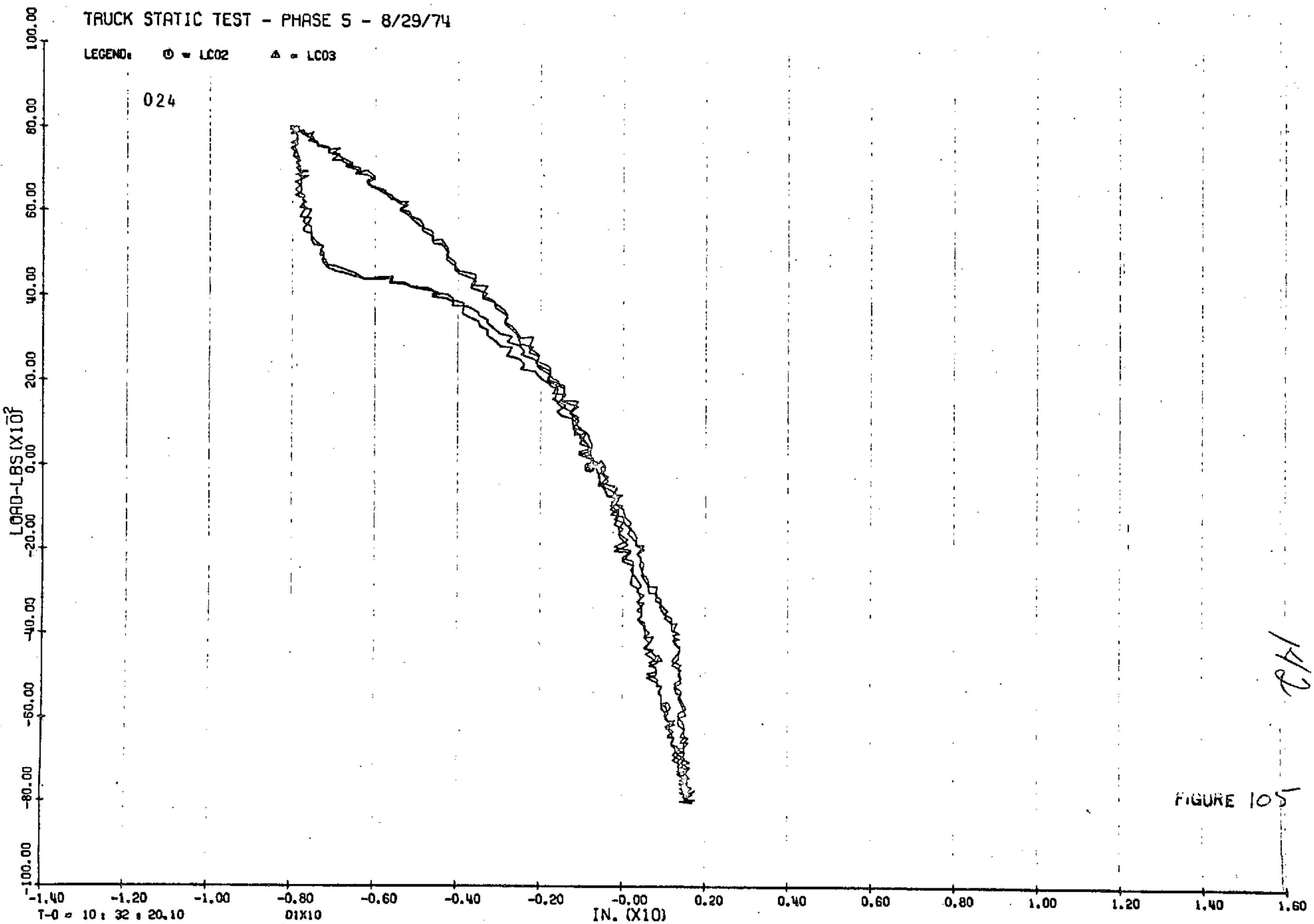
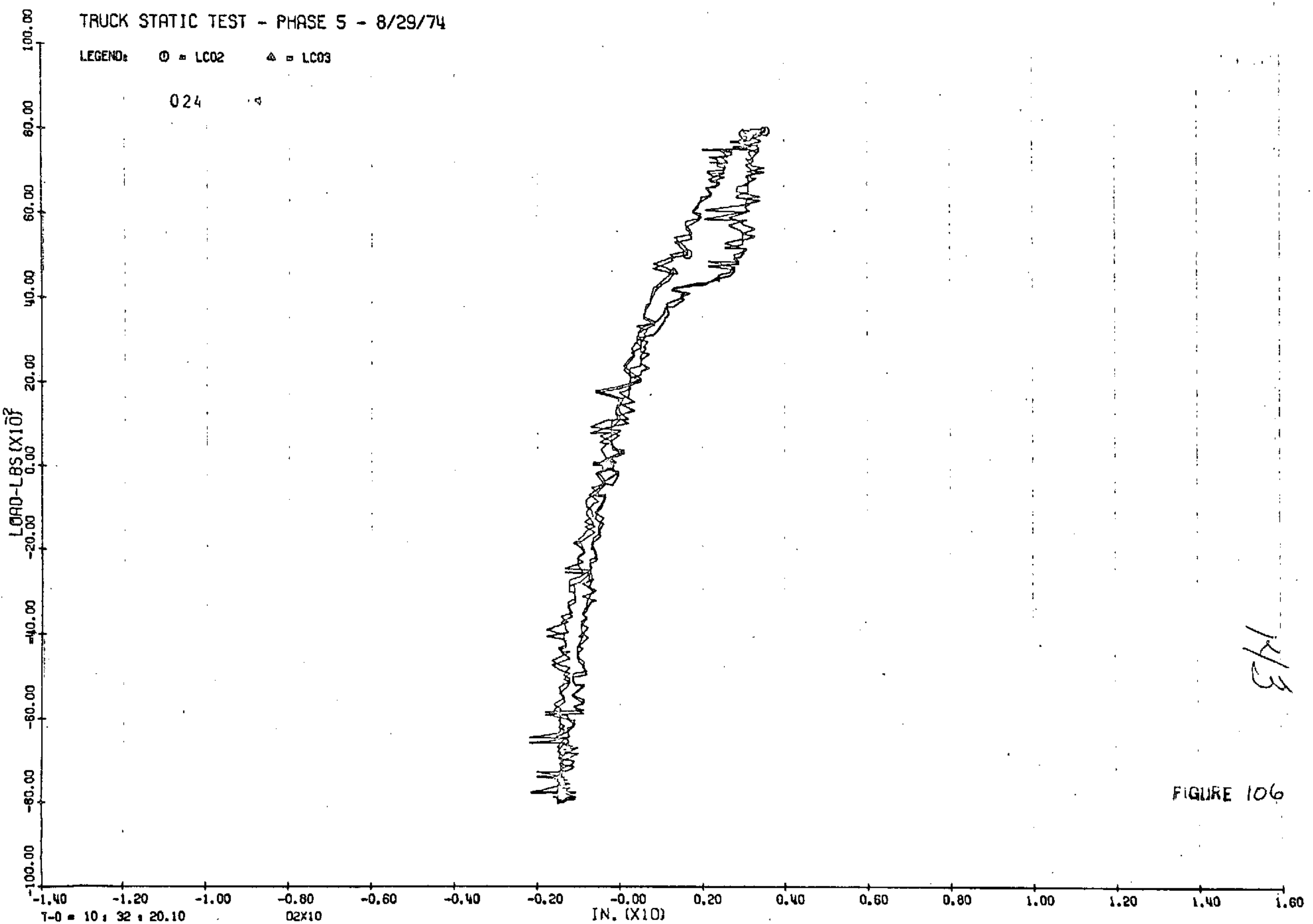


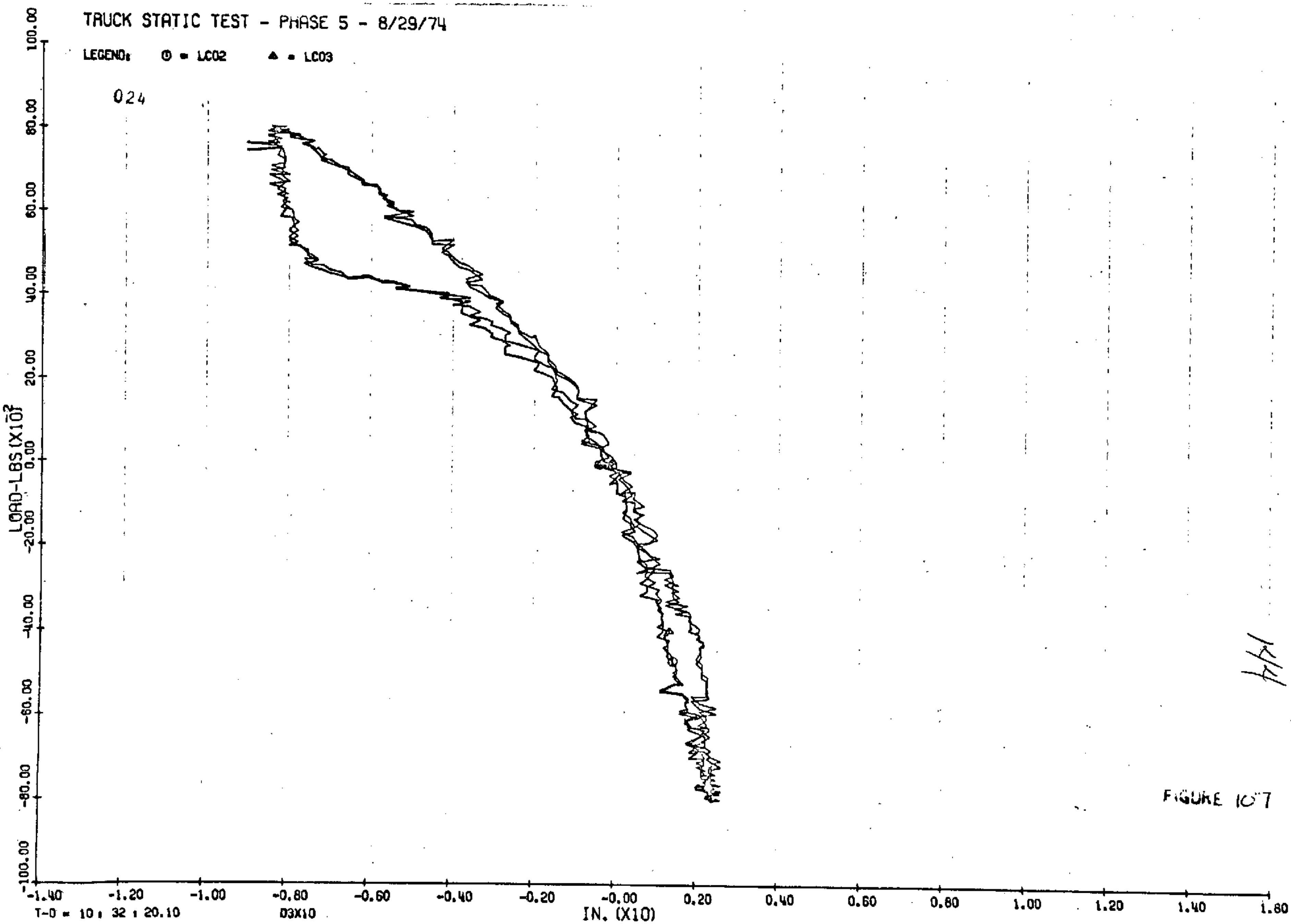
FIGURE 105

142



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ◬ = LC03
024
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 32 : 20.10
02X10
143

FIGURE 106



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
024
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 32 : 20.10
03X10
IN. (X10)

FIGURE 107

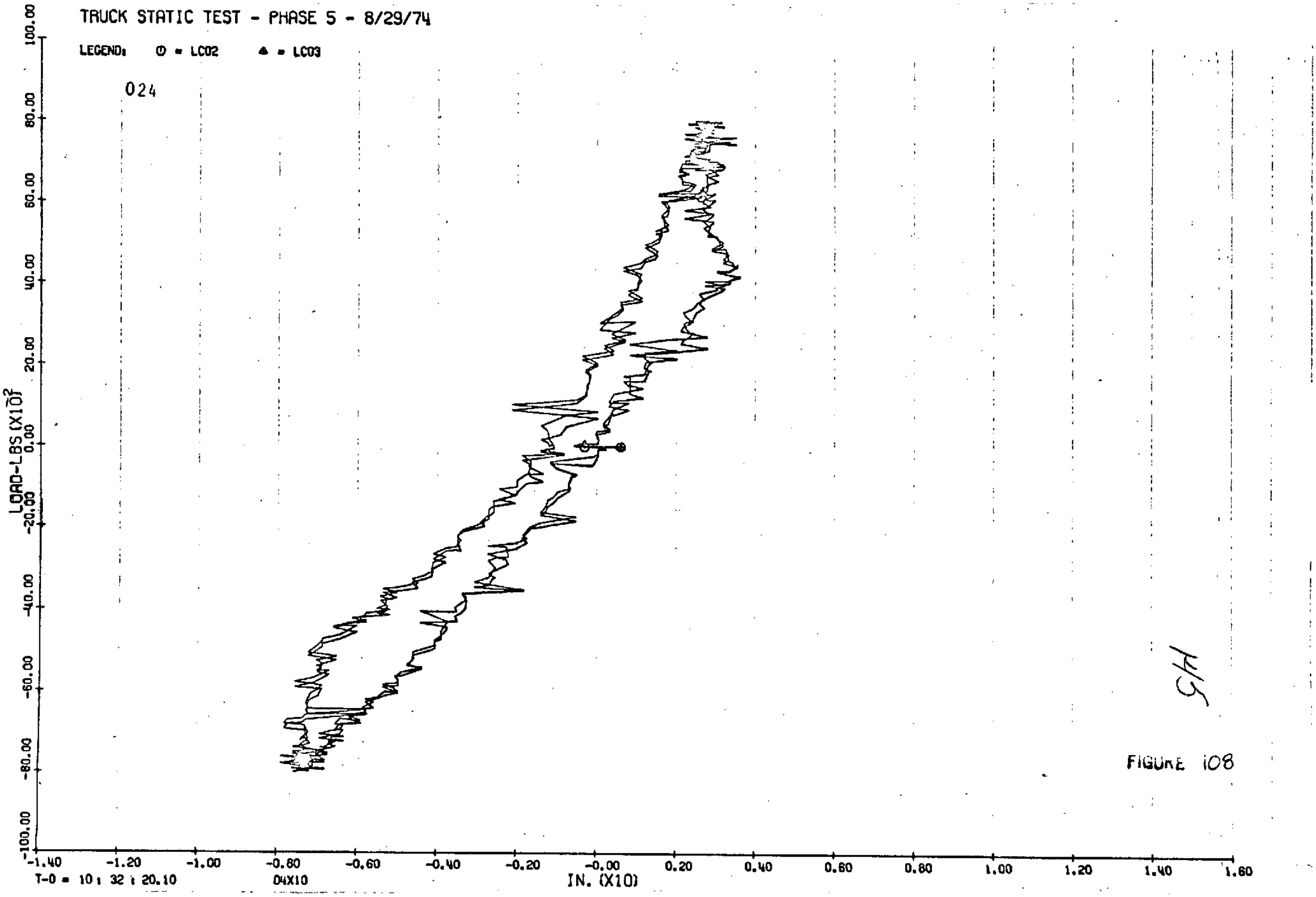

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
024
LOAD-LBS (X10)²
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 32 : 20.10
04X10
4/5

FIGURE 108

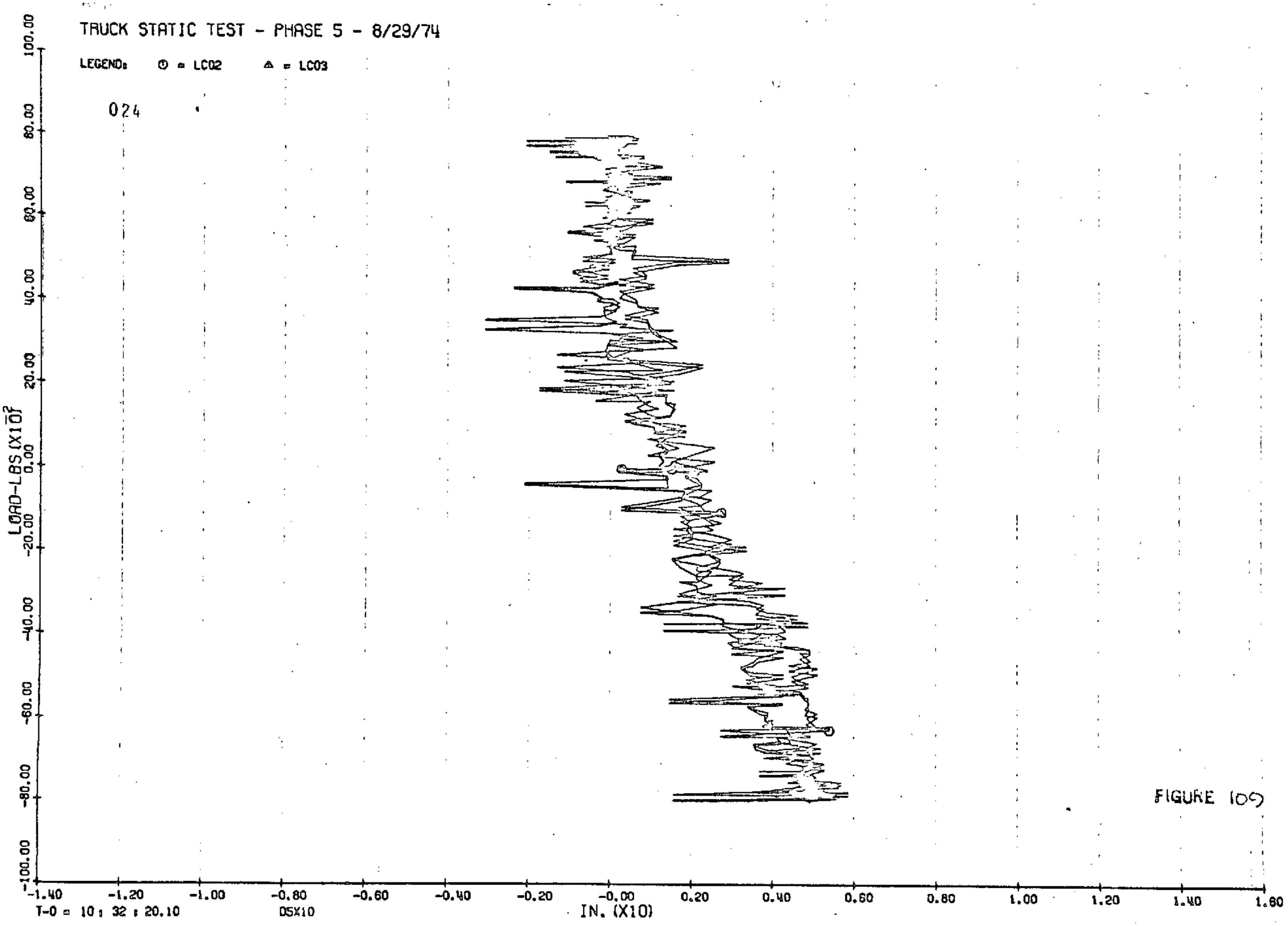


FIGURE 109

TR-131S-74

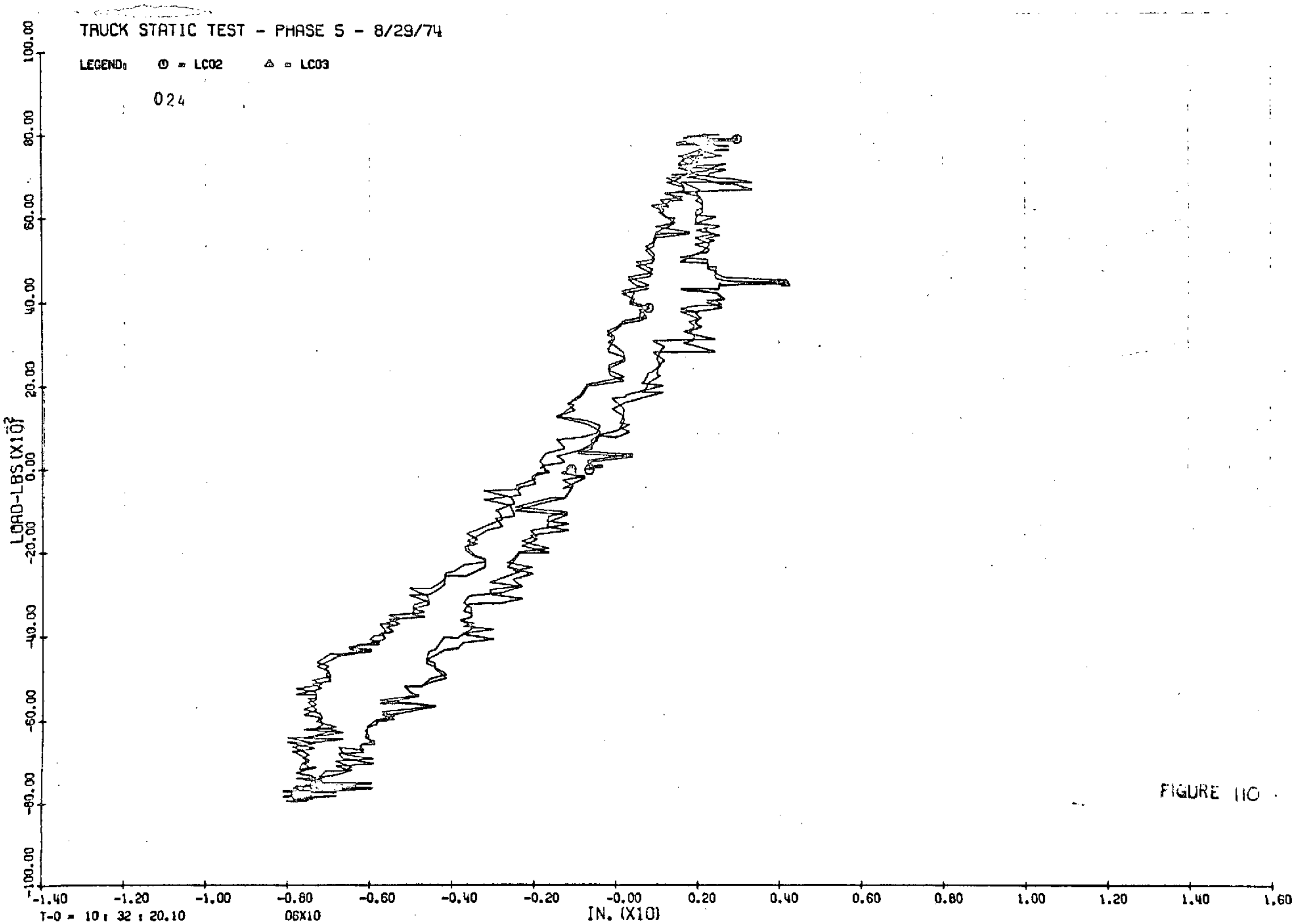

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
024
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 32 : 20.10
06X10

FIGURE 110

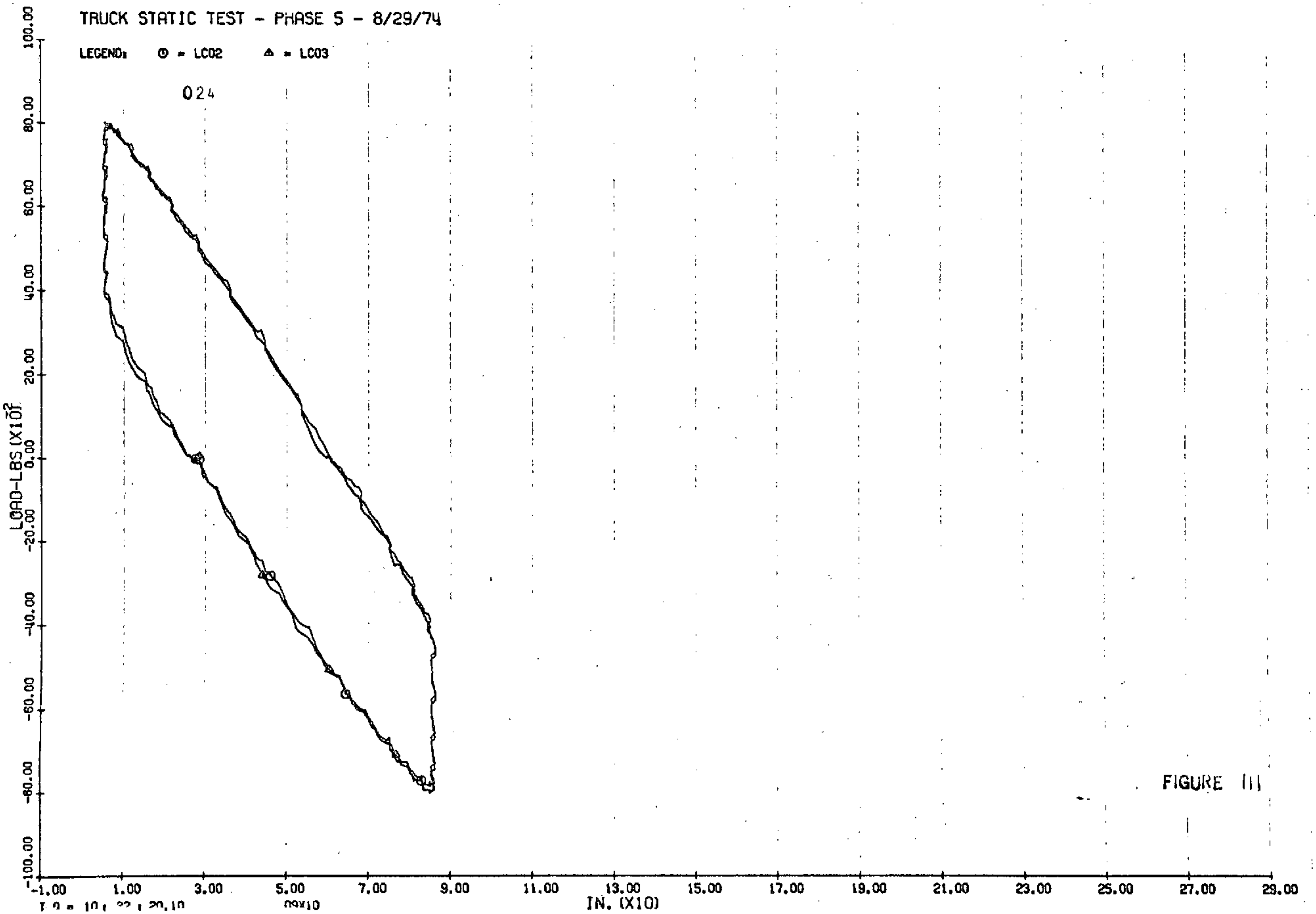
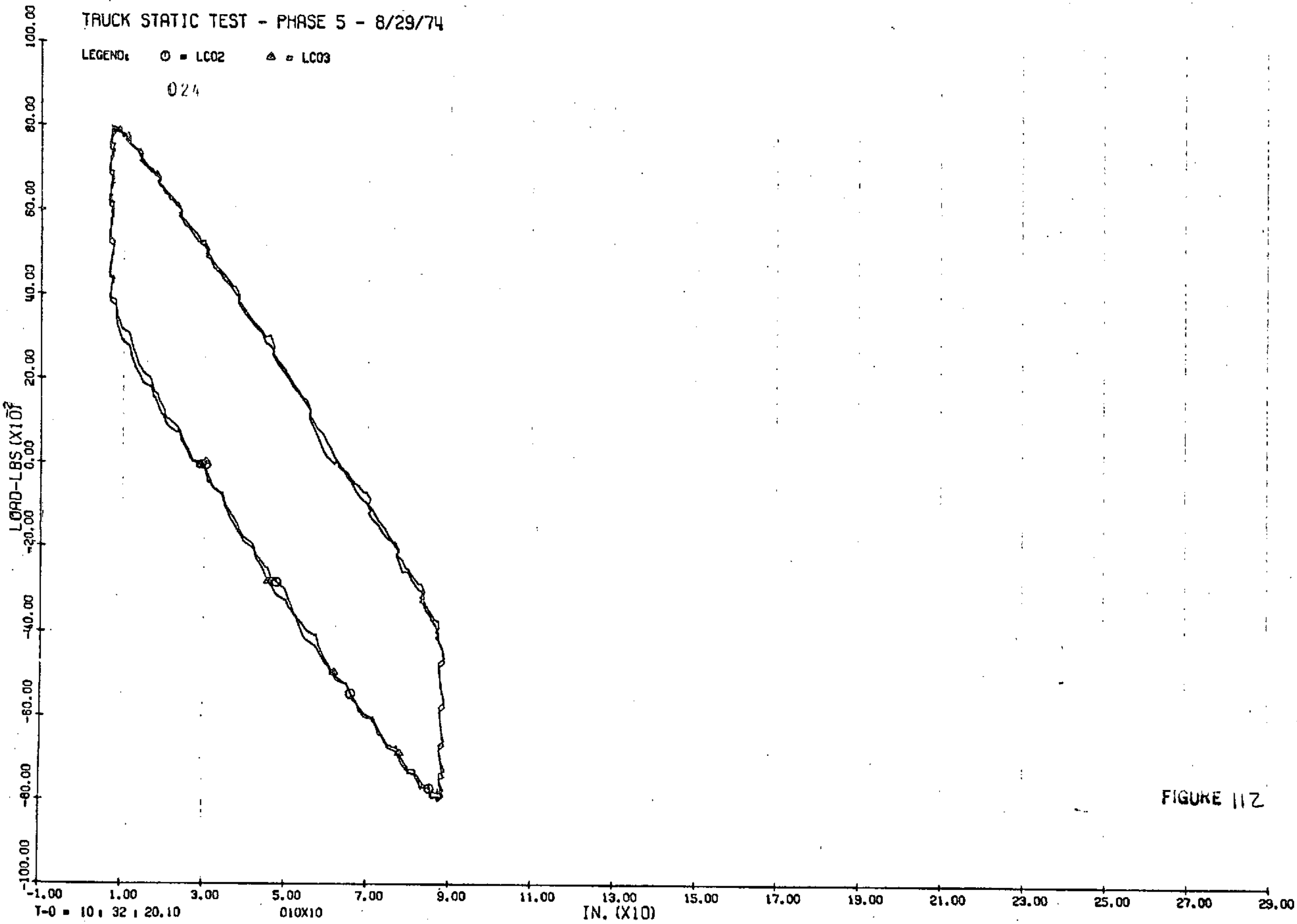
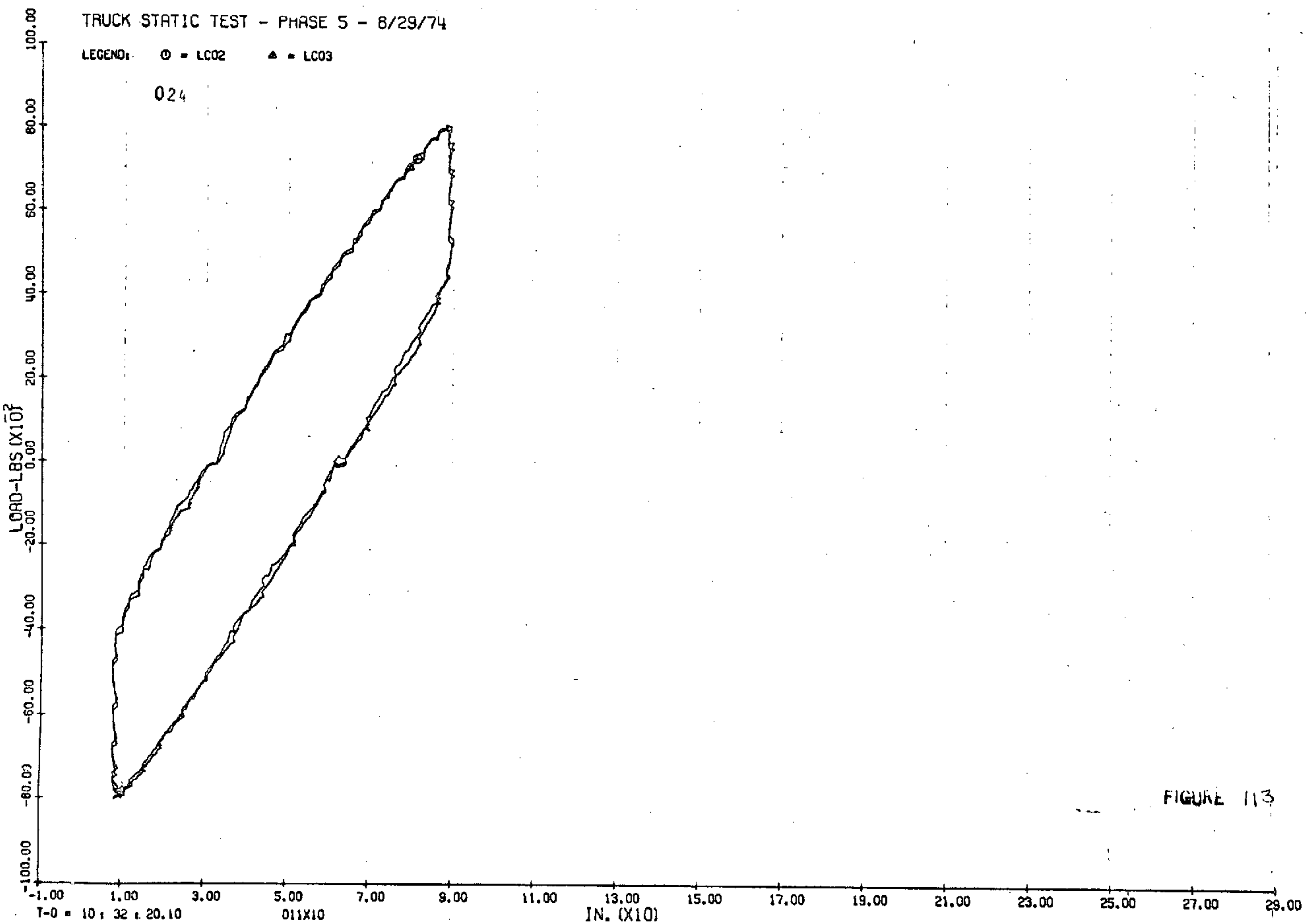

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
024
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)

FIGURE 111



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
024
LOAD-LBS (X10^2)
IN. (X10)
T-0 = 10 : 32 : 20.10
010X10

FIGURE 112



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
024
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 32 : 20.10
011X10

FIGURE 113

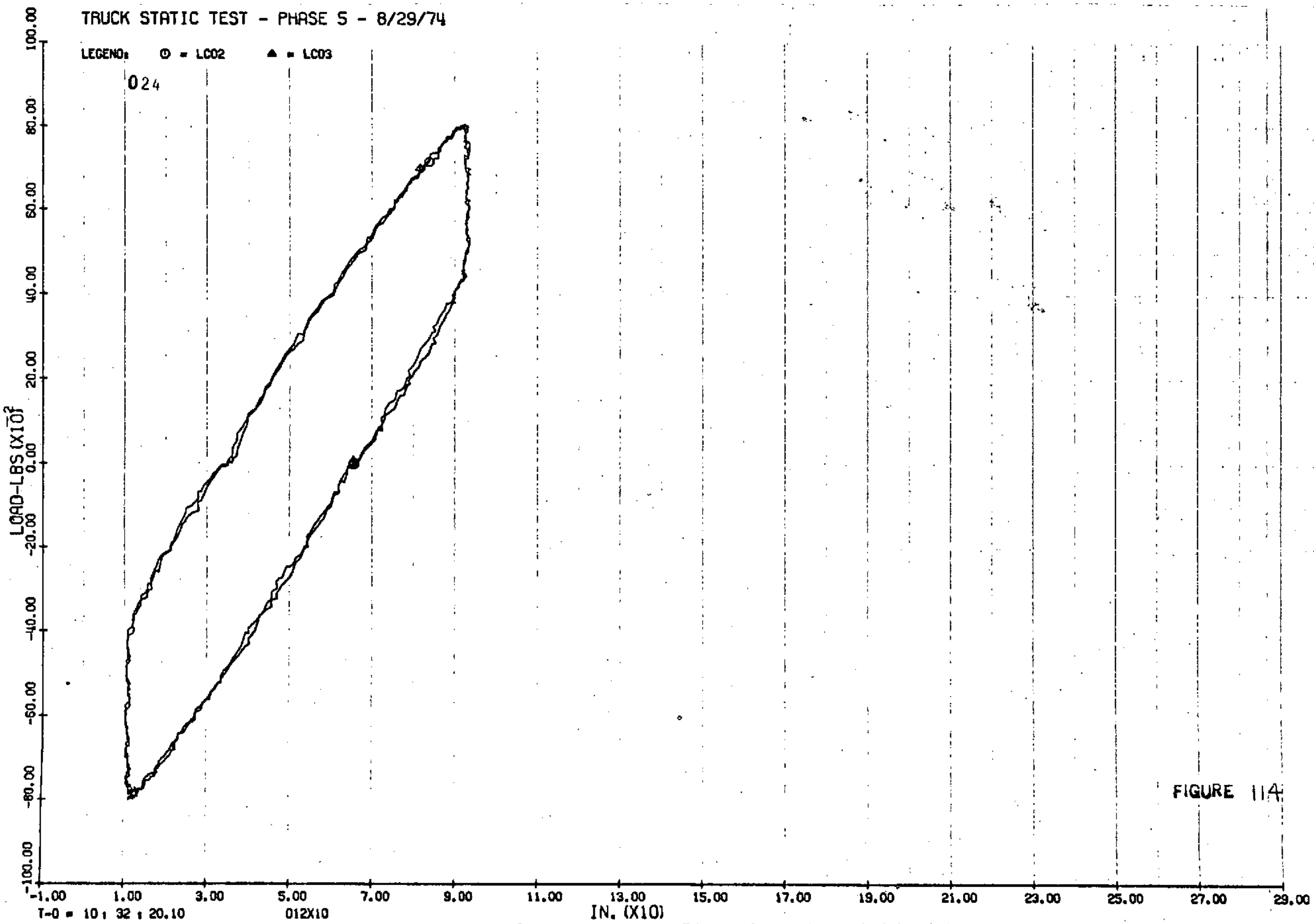

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
024
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 32 : 20.10
012X10

FIGURE 114

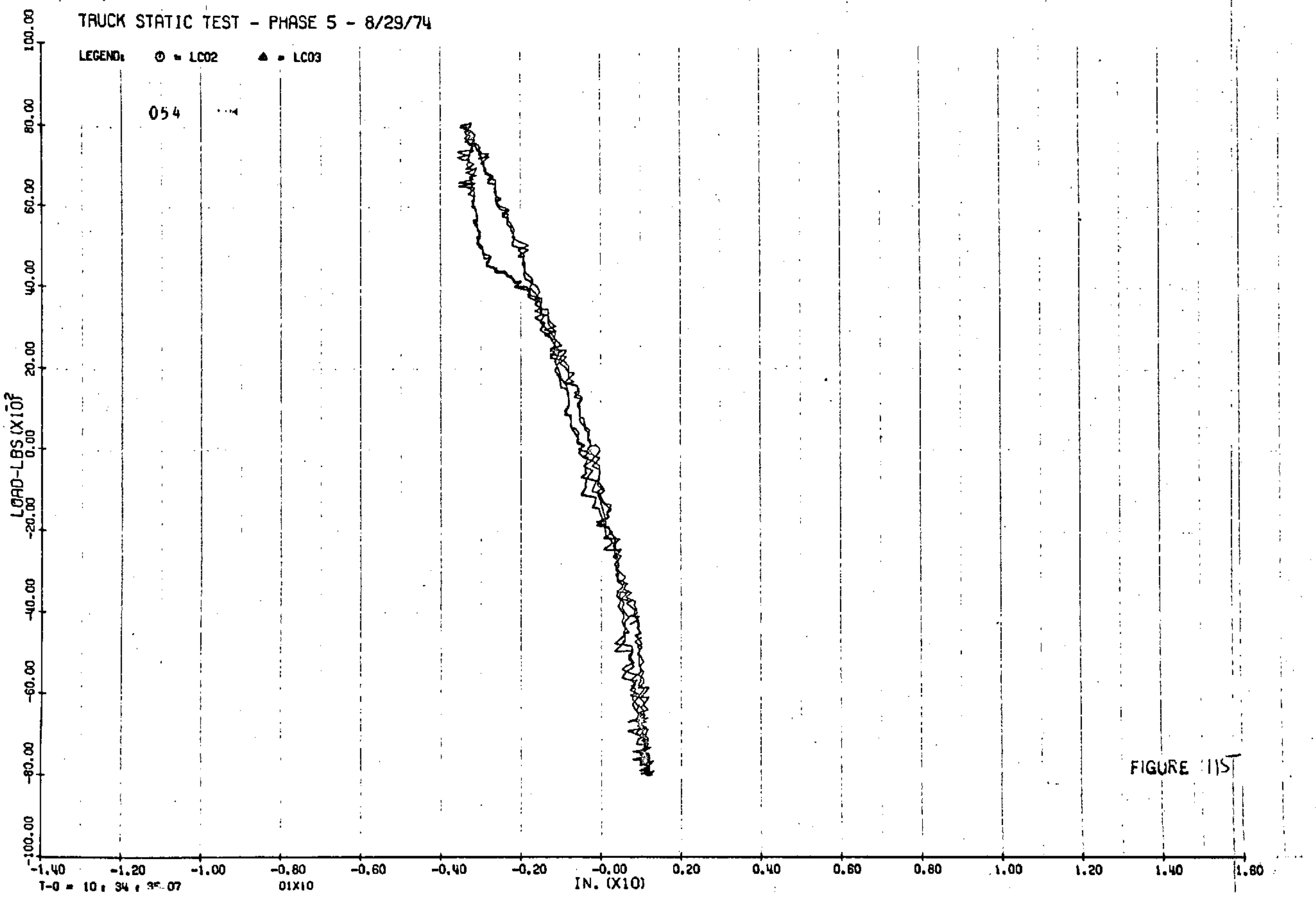

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
054
LOAD-LBS (X10^{2})
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
01X10
T-0 = 10 : 34 : 35.07

FIGURE 115

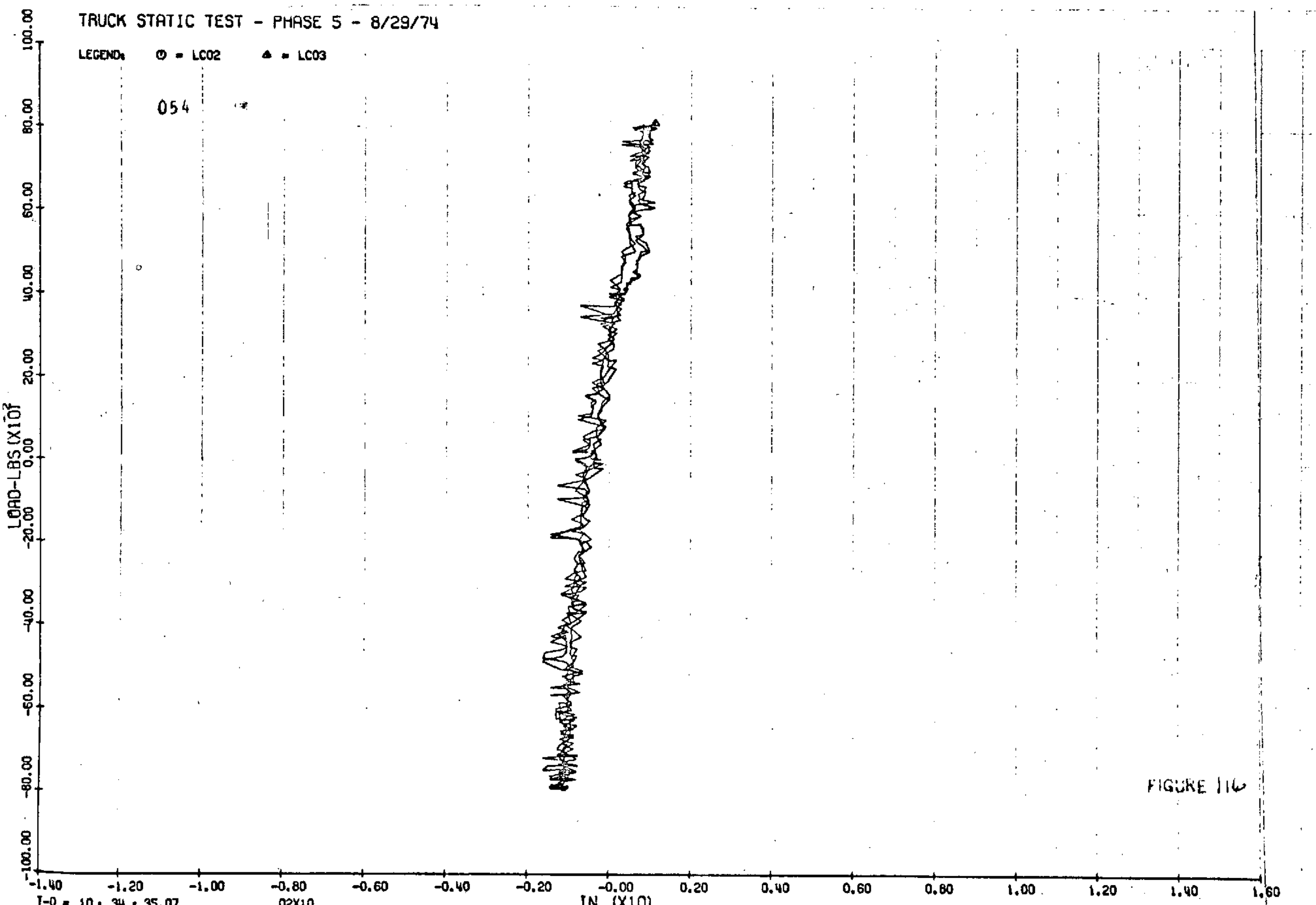

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
054
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 34 : 35.07
02X10

FIGURE 116

TRUCK STATIC TEST - PHASE 5 - 8/29/74

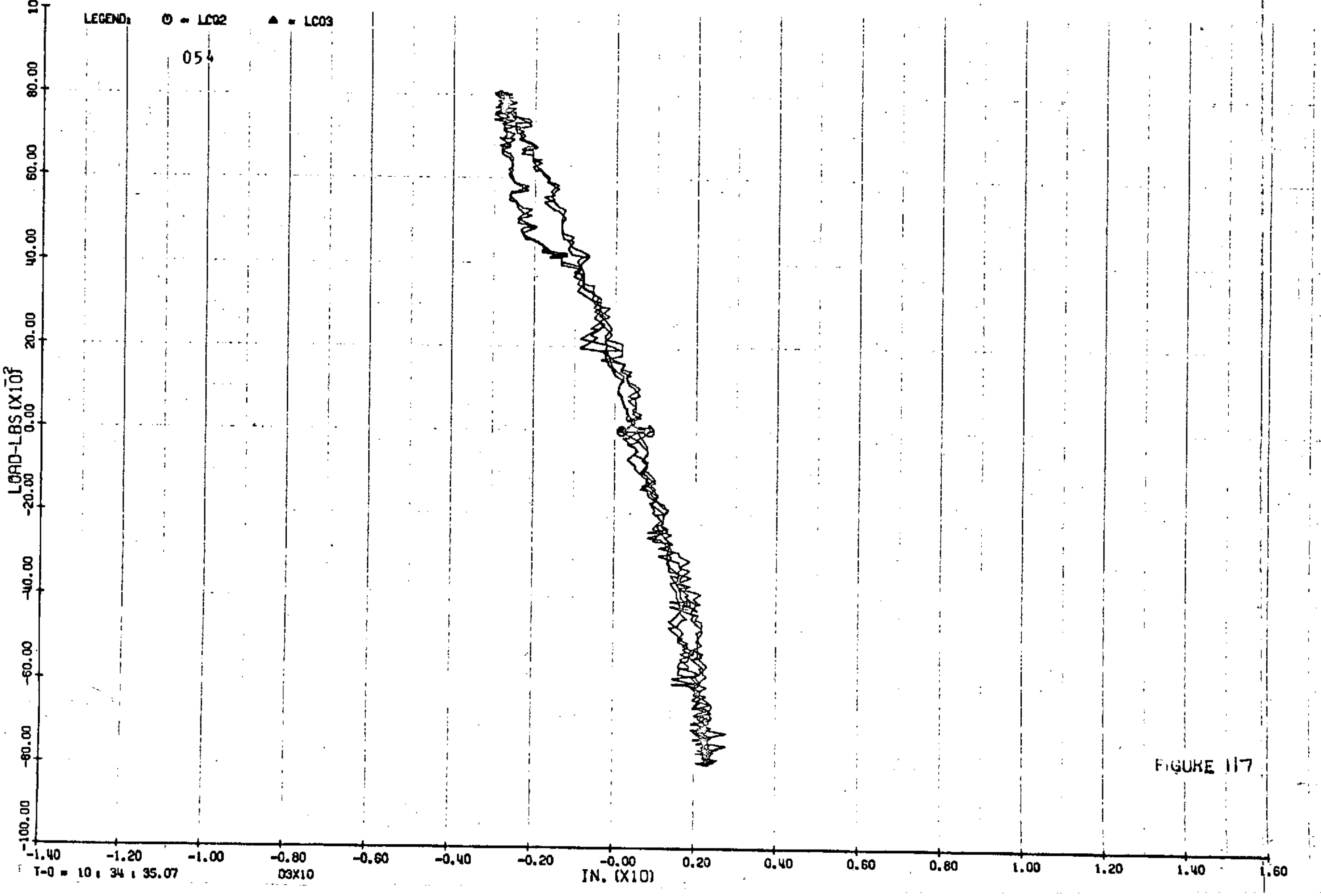


FIGURE 117

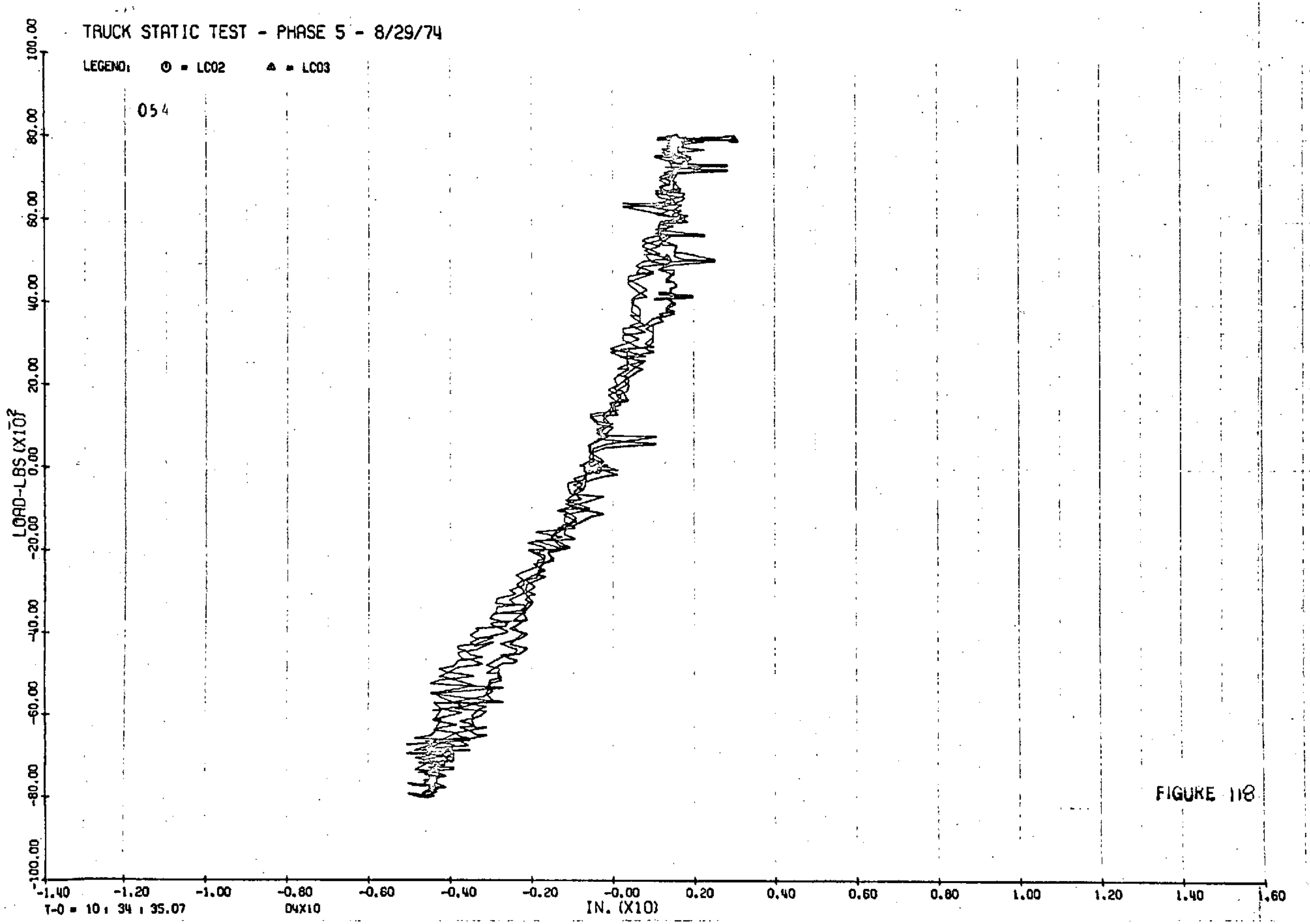
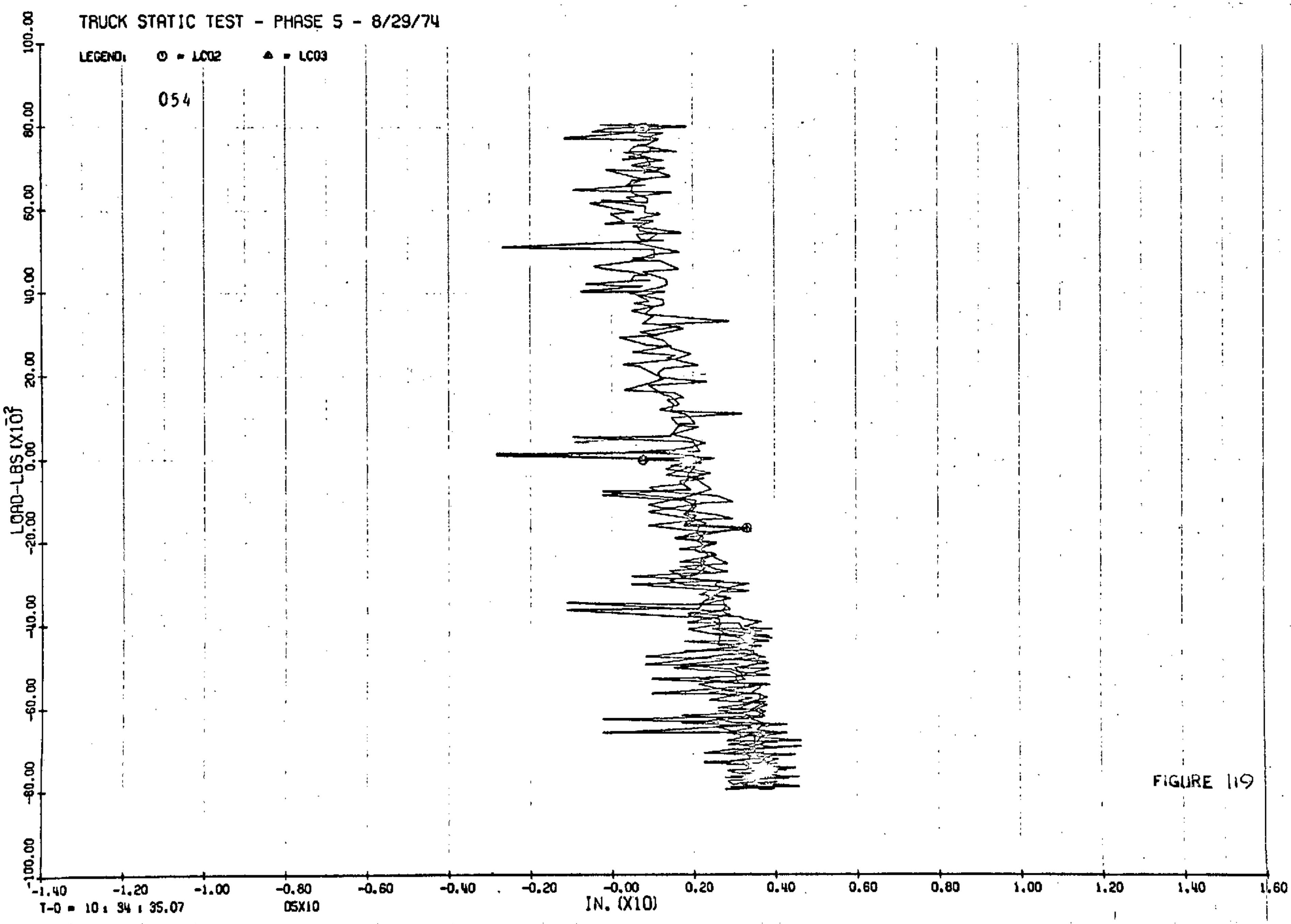
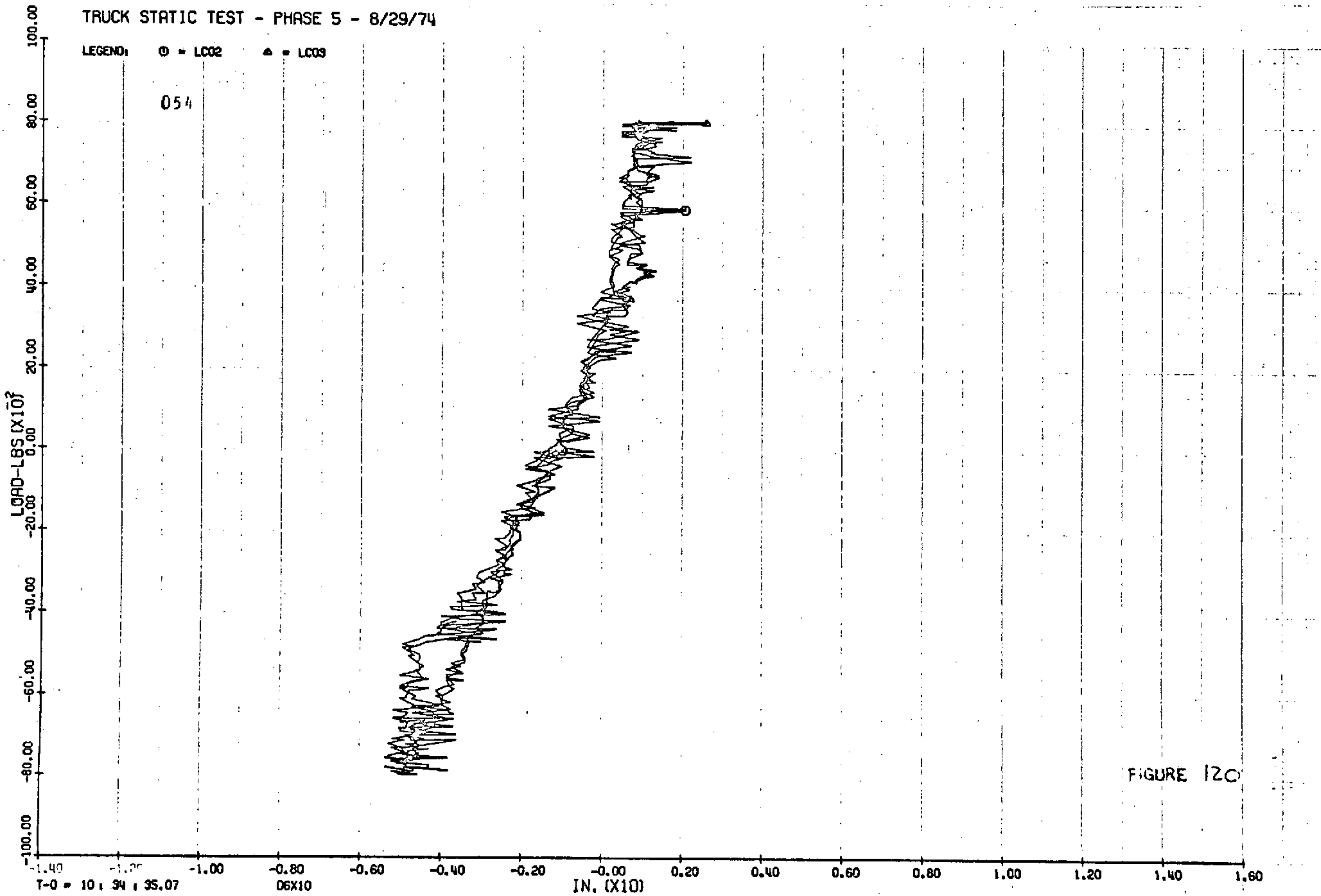

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
054
LOAD-LBS (X10^{2})
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 34 : 35.07
04X10
IN. (X10)

FIGURE 118



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
054
LOAD-LBS (X10^{-2})
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 34 : 35.07
D5X10
IN. (X10)

FIGURE 119



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
054
LOAD-LBS (X10²)
IN. (X10)
T-0 = 10 : 34 : 35.07
06X10

FIGURE 120

TRUCK STATIC TEST - PHASE 5 - 8/29/74

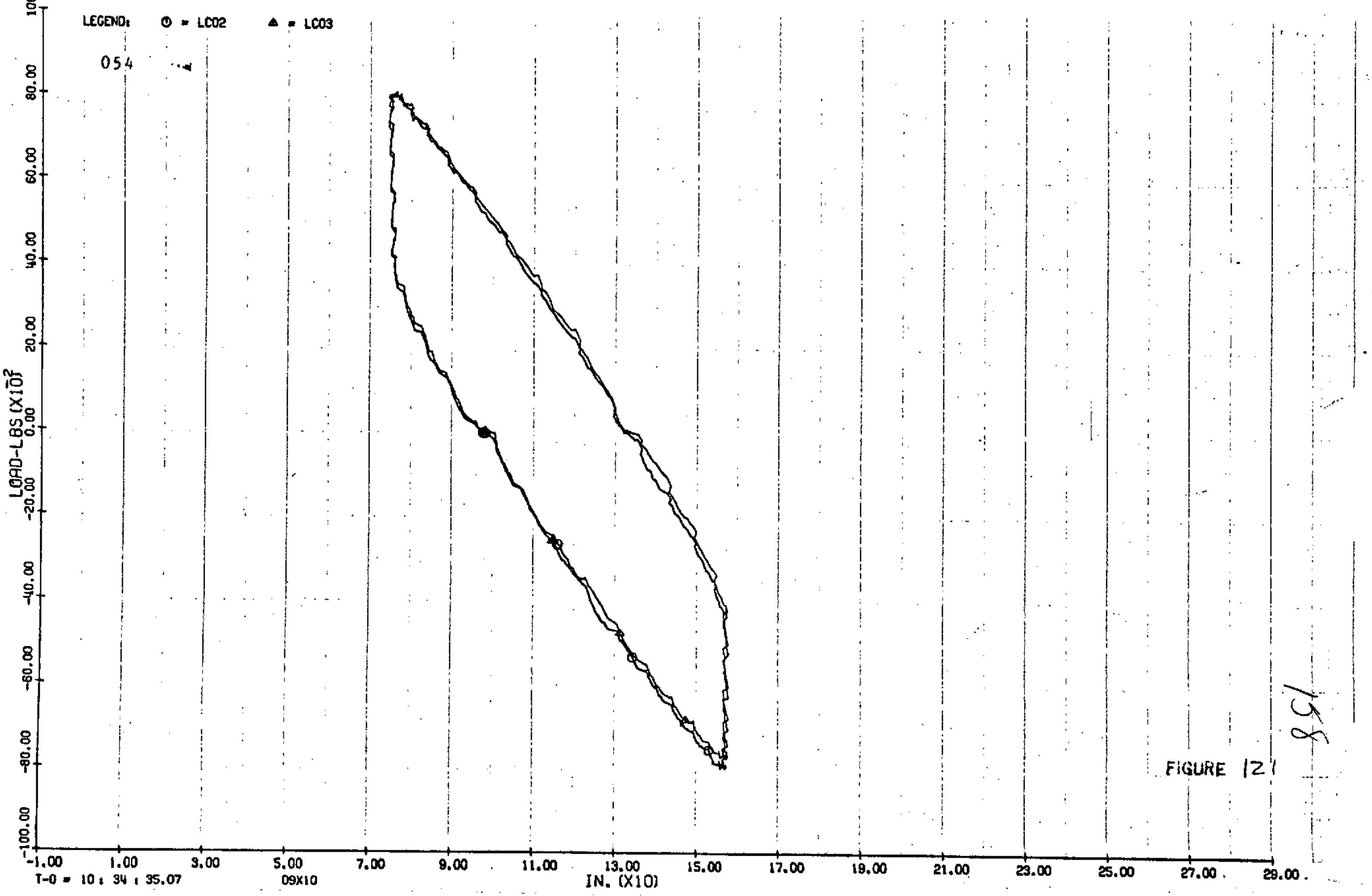


FIGURE 121

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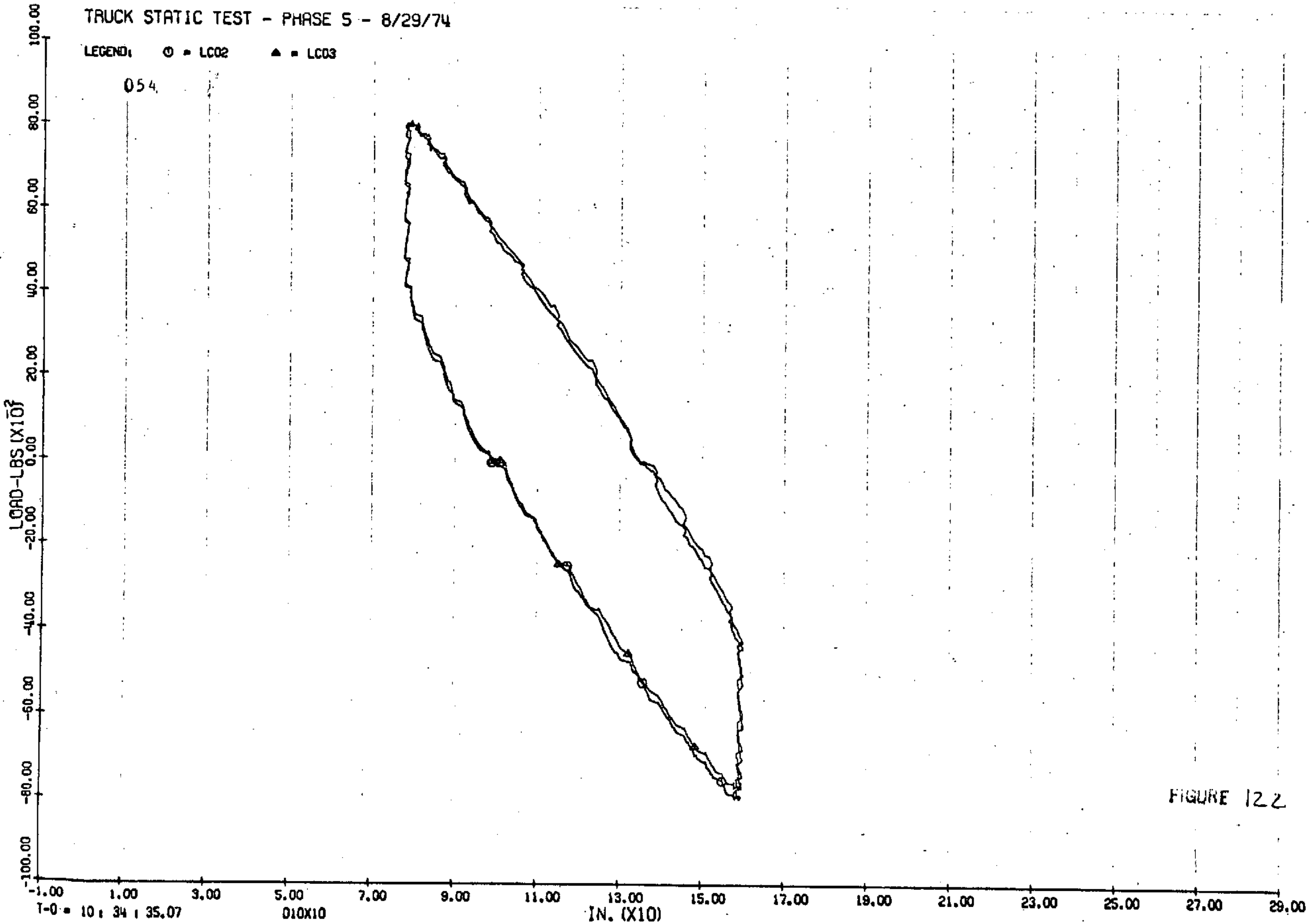
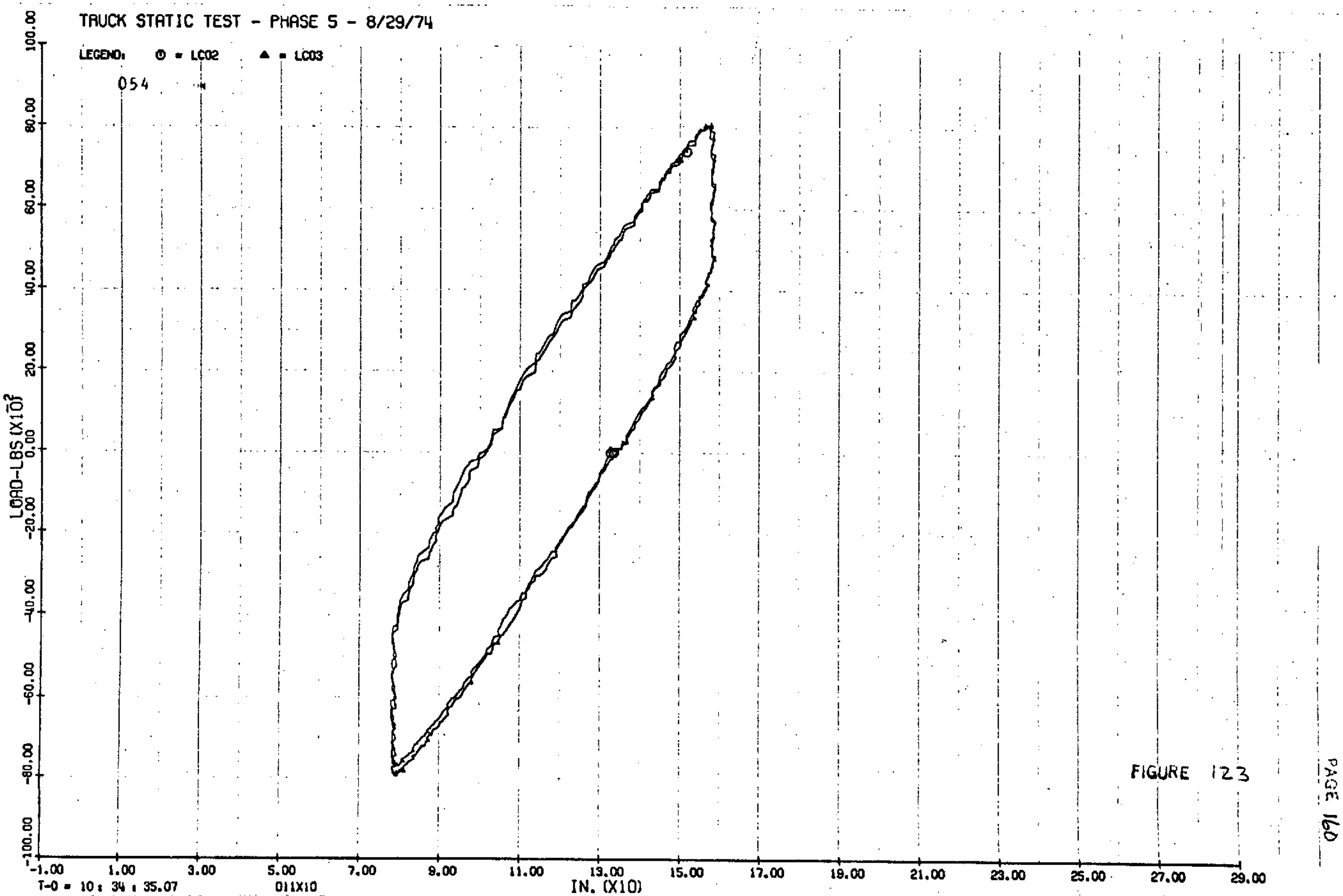


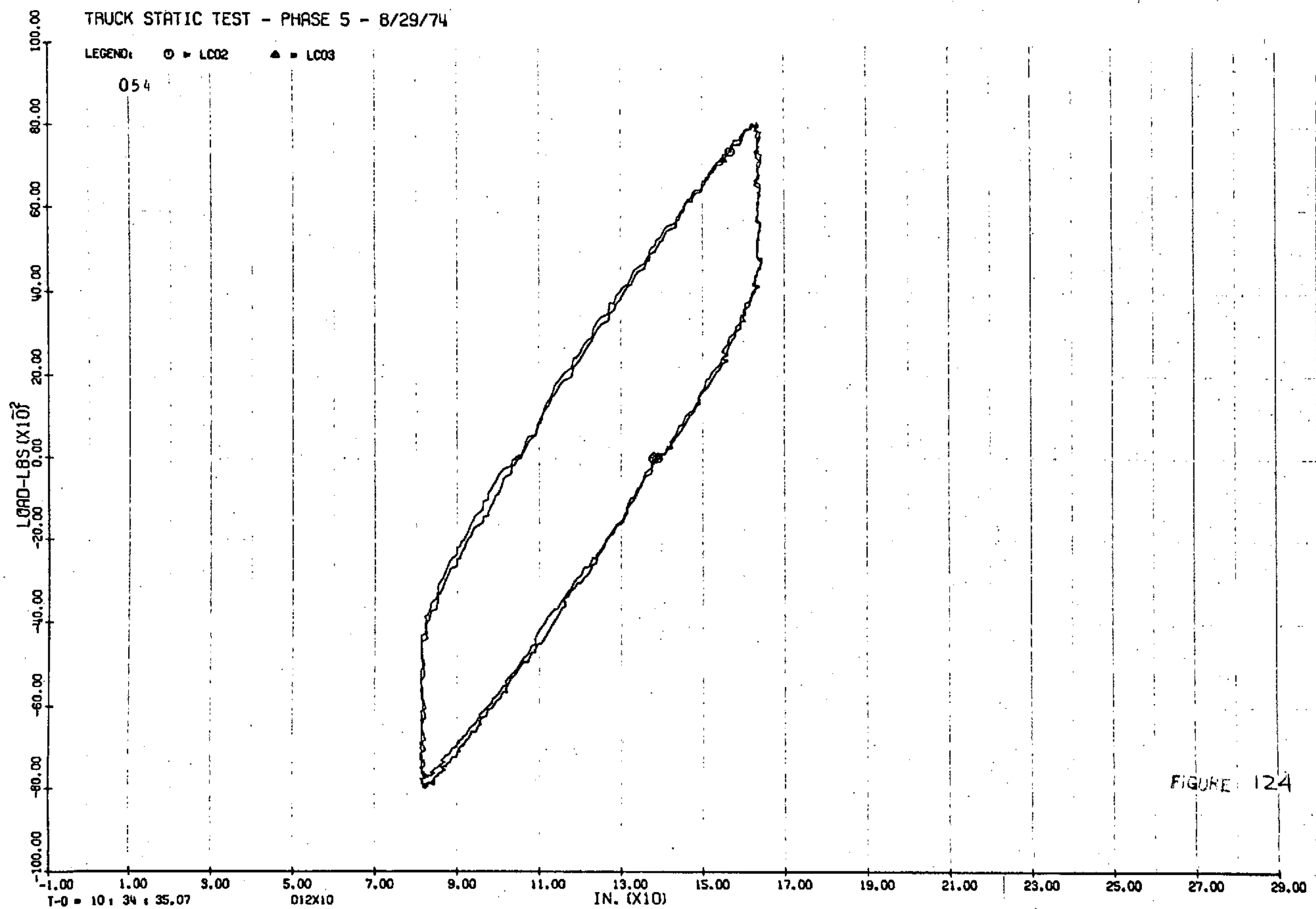
TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
054
LOAD-LBS (X10^{2})
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 34 : 35.07
D10X10

FIGURE 12.2



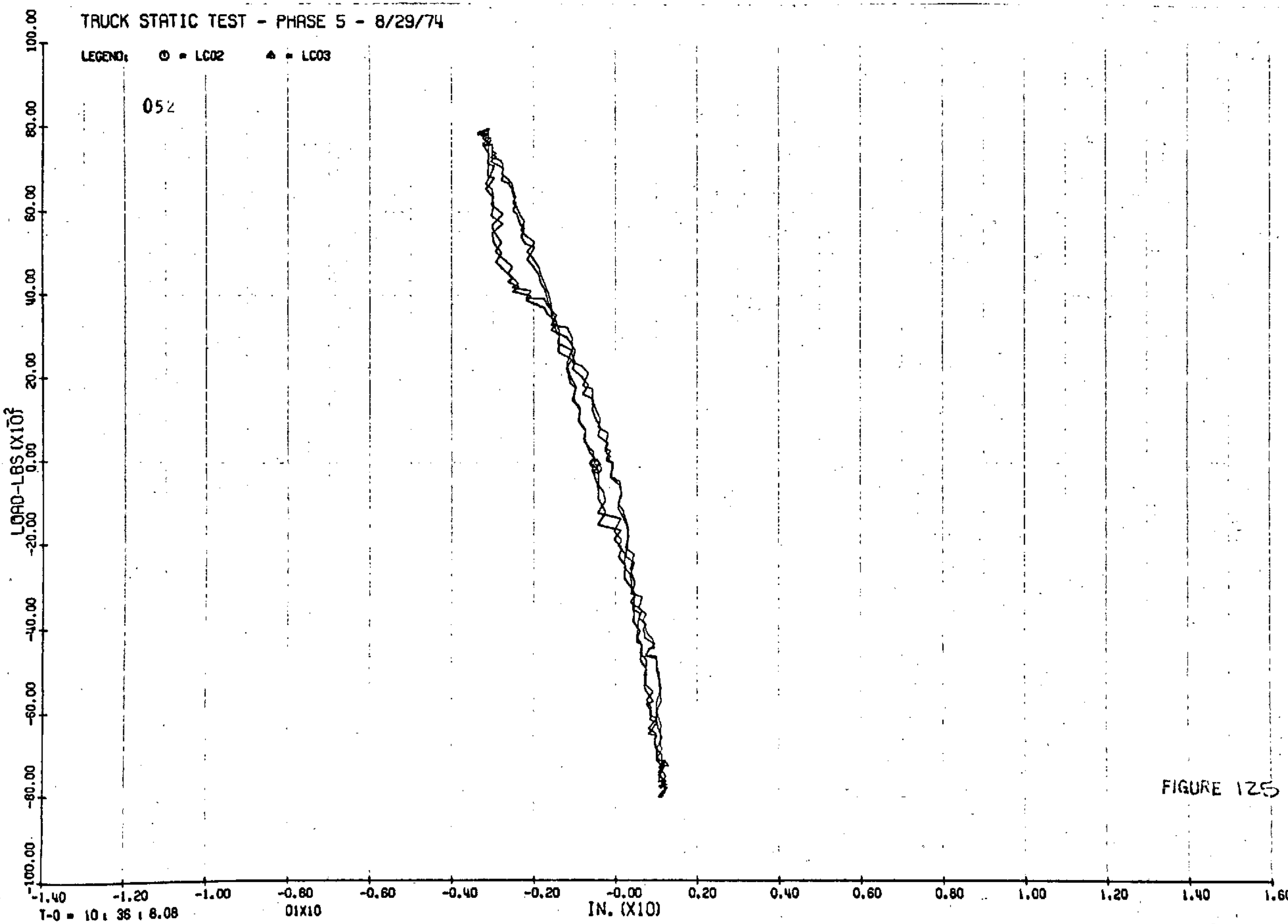
TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
054
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 34 : 35.07
D11X10

FIGURE 123



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
054
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 34 : 35.07
D12X10

FIGURE 124



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
052
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 36 : 8.08
D1X10
IN. (X10)

FIGURE 125

TRUCK STATIC TEST - PHASE 5 - 8/29/74

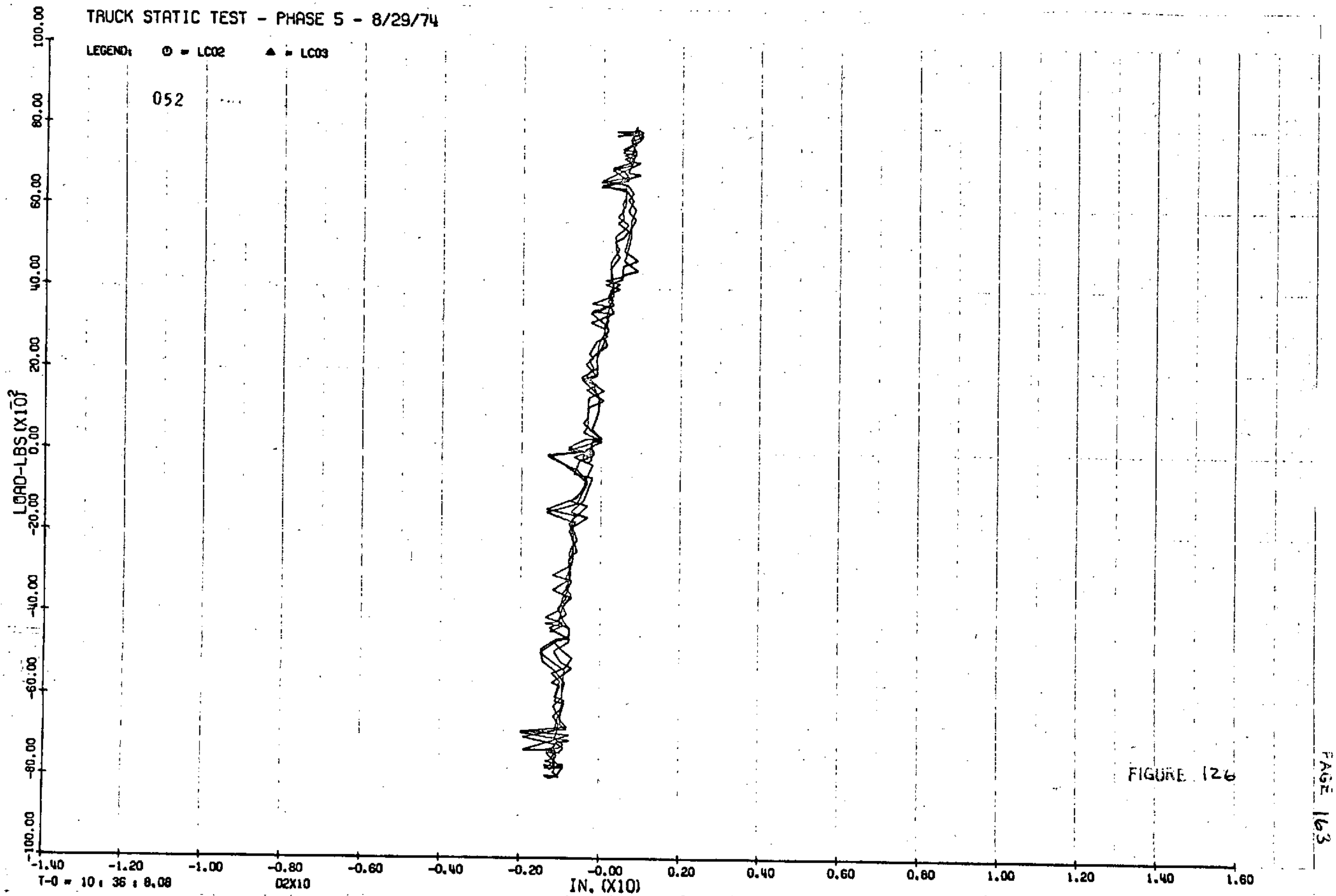
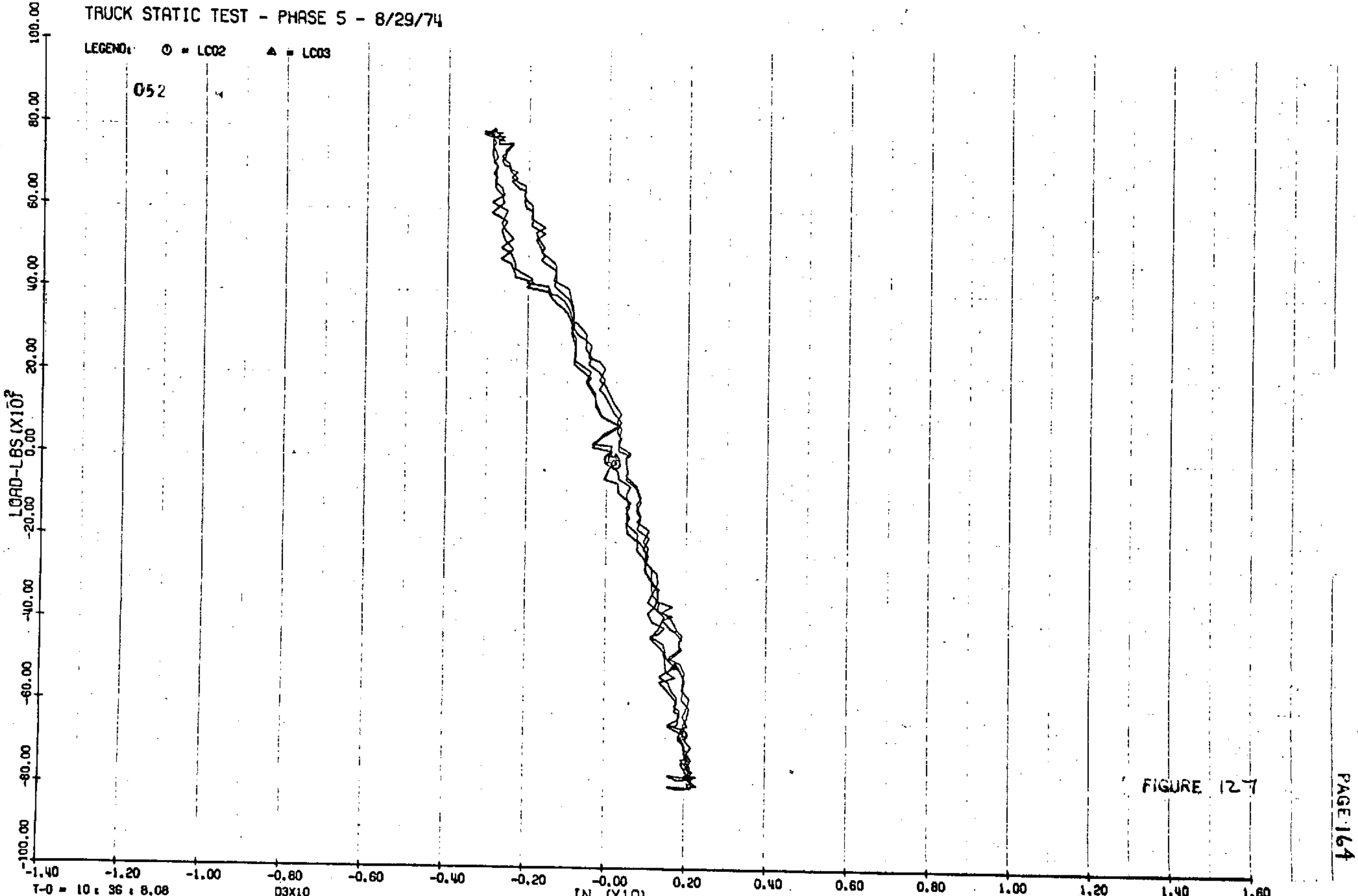


FIGURE 126



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
052
LOAD-LBS (X10²)
IN. (X10)
T-0 = 10 : 36 : 8.08
D3X10

FIGURE 127

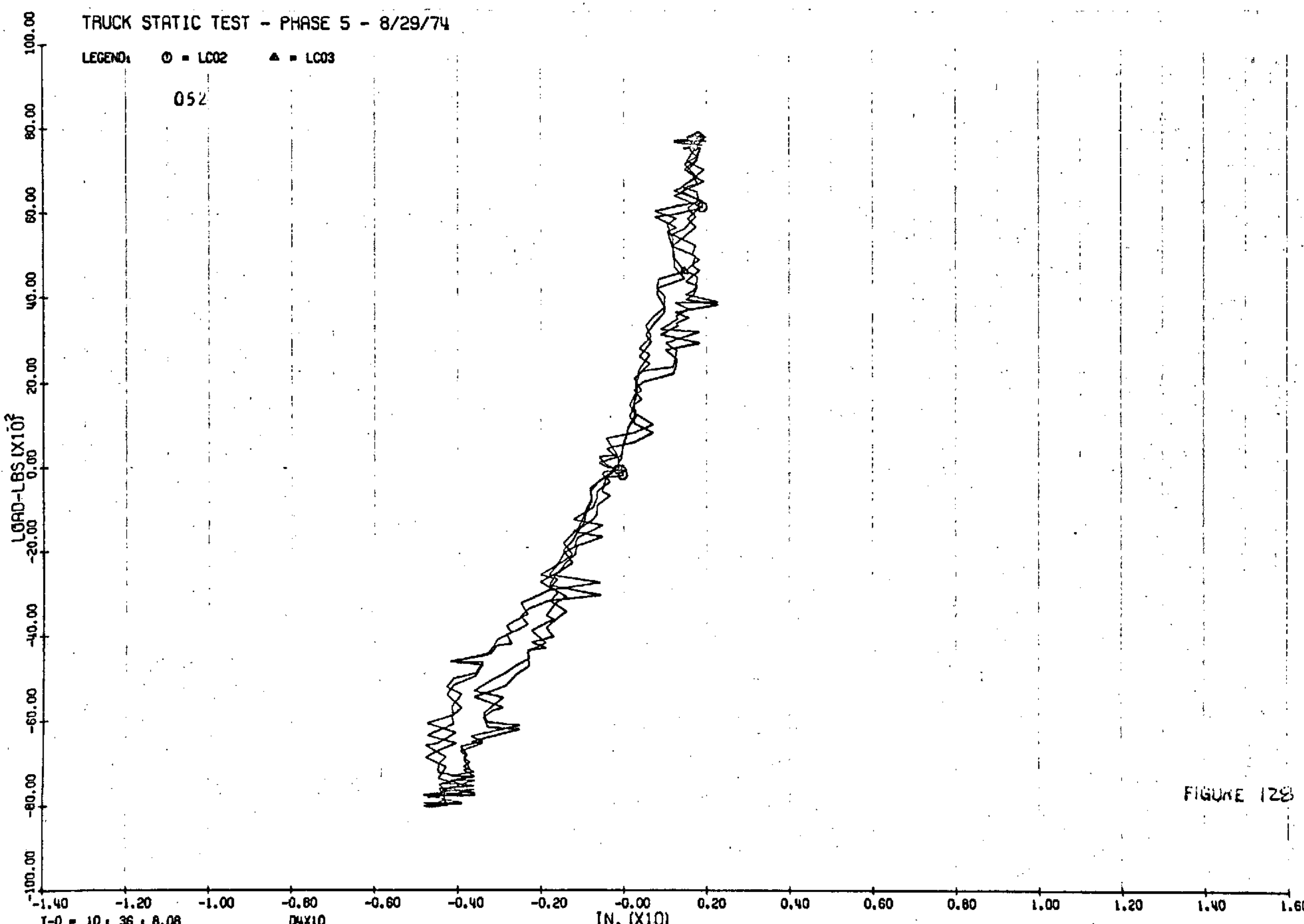
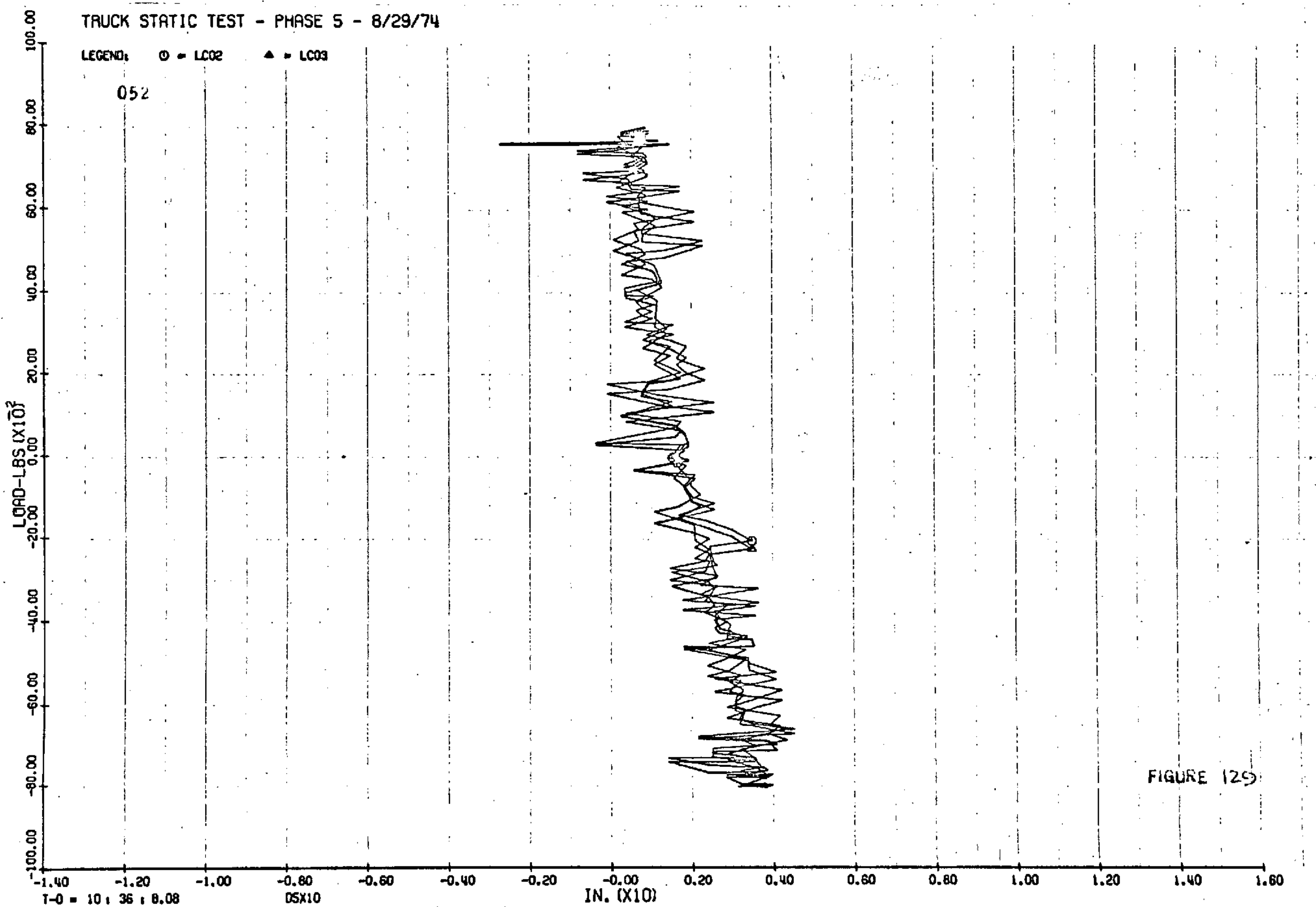
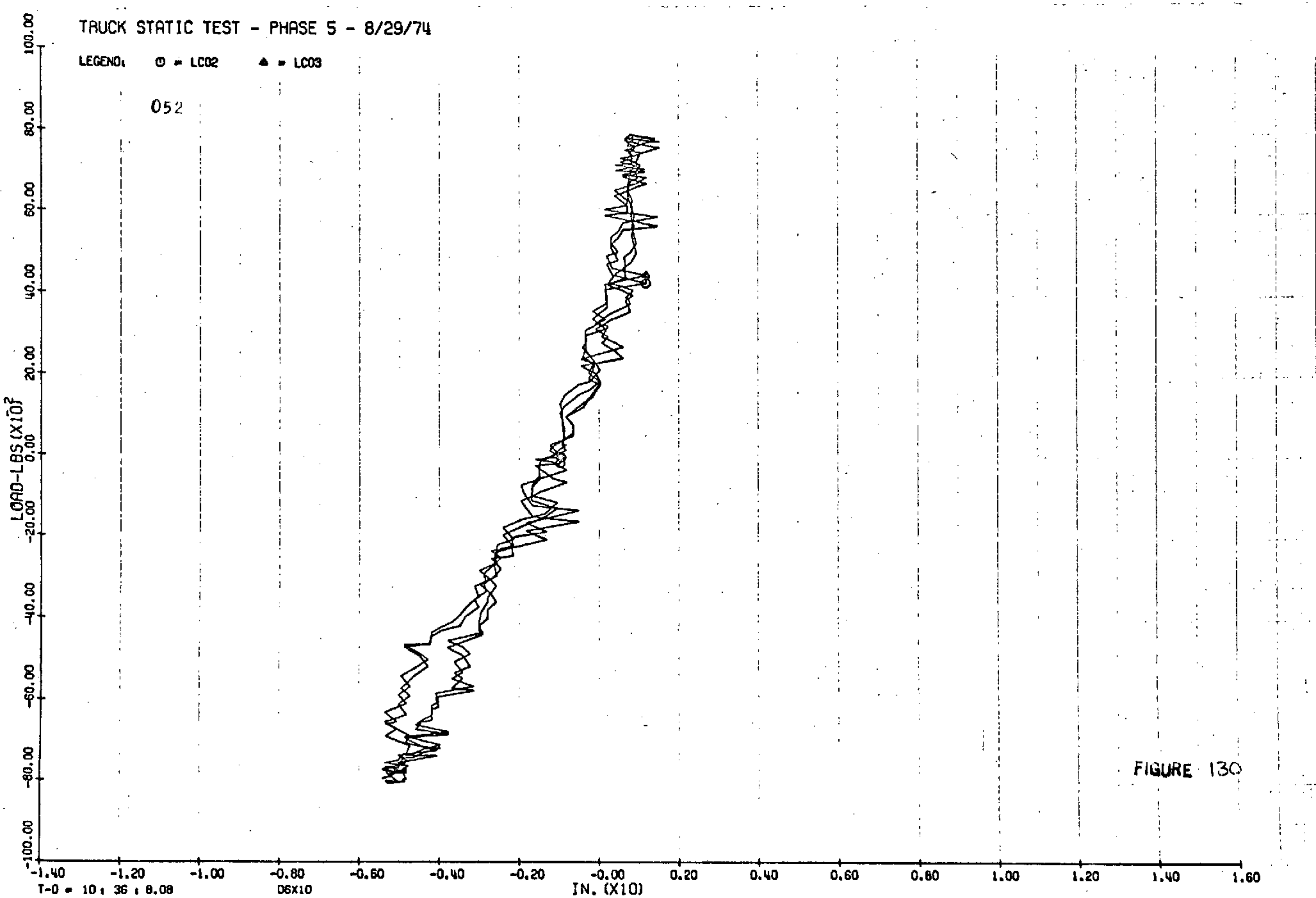

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
052
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 36 : 8.08
D4X10
IN. (X10)

FIGURE 128


TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
052
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 36 : 8.08
DSX10
FIGURE 129



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
052
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 36 : 8.08
D6X10
IN. (X10)

FIGURE 130

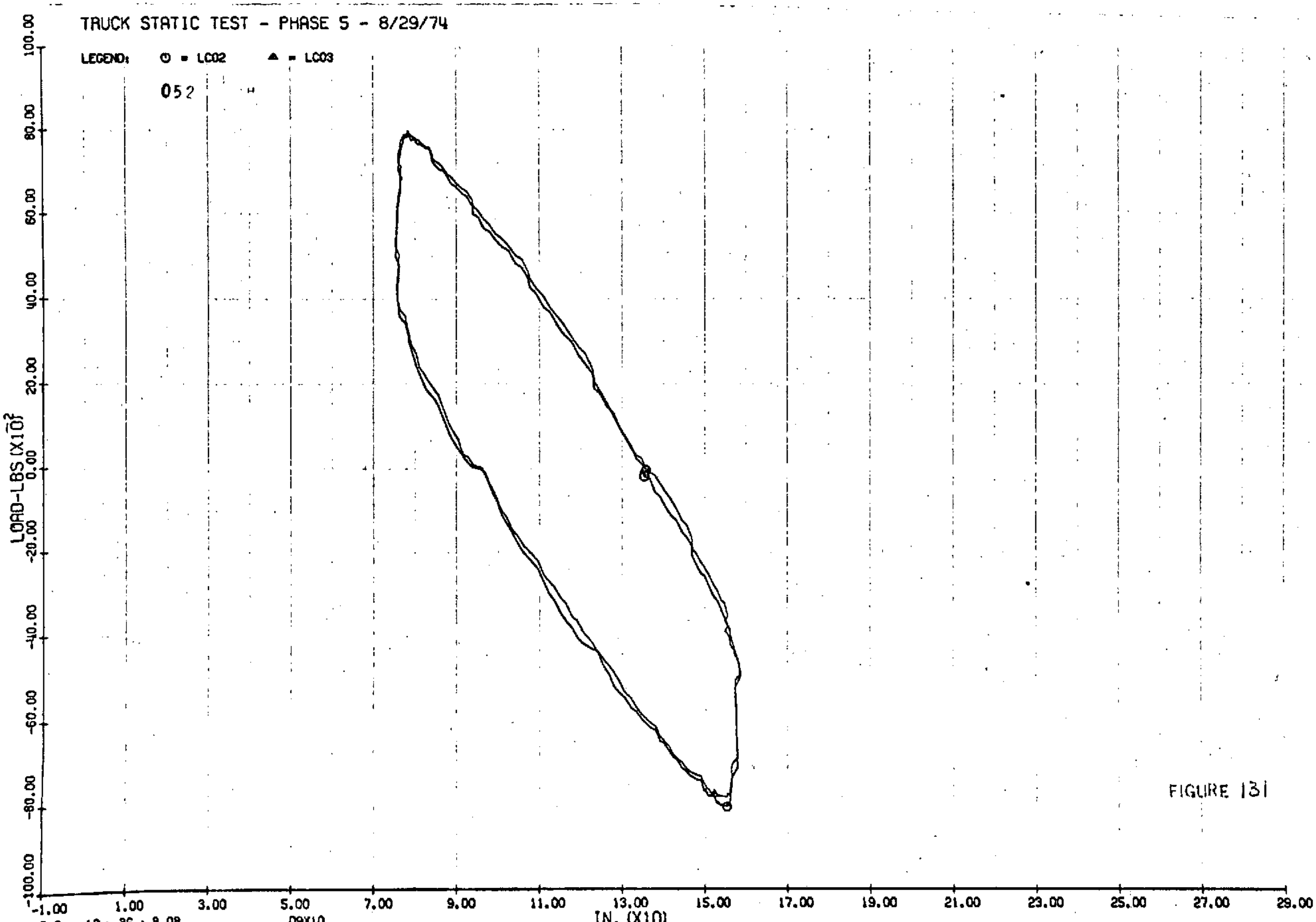

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ○ = LC02 ▲ = LC03
052
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 36 : 8.08
D9X10

FIGURE 131

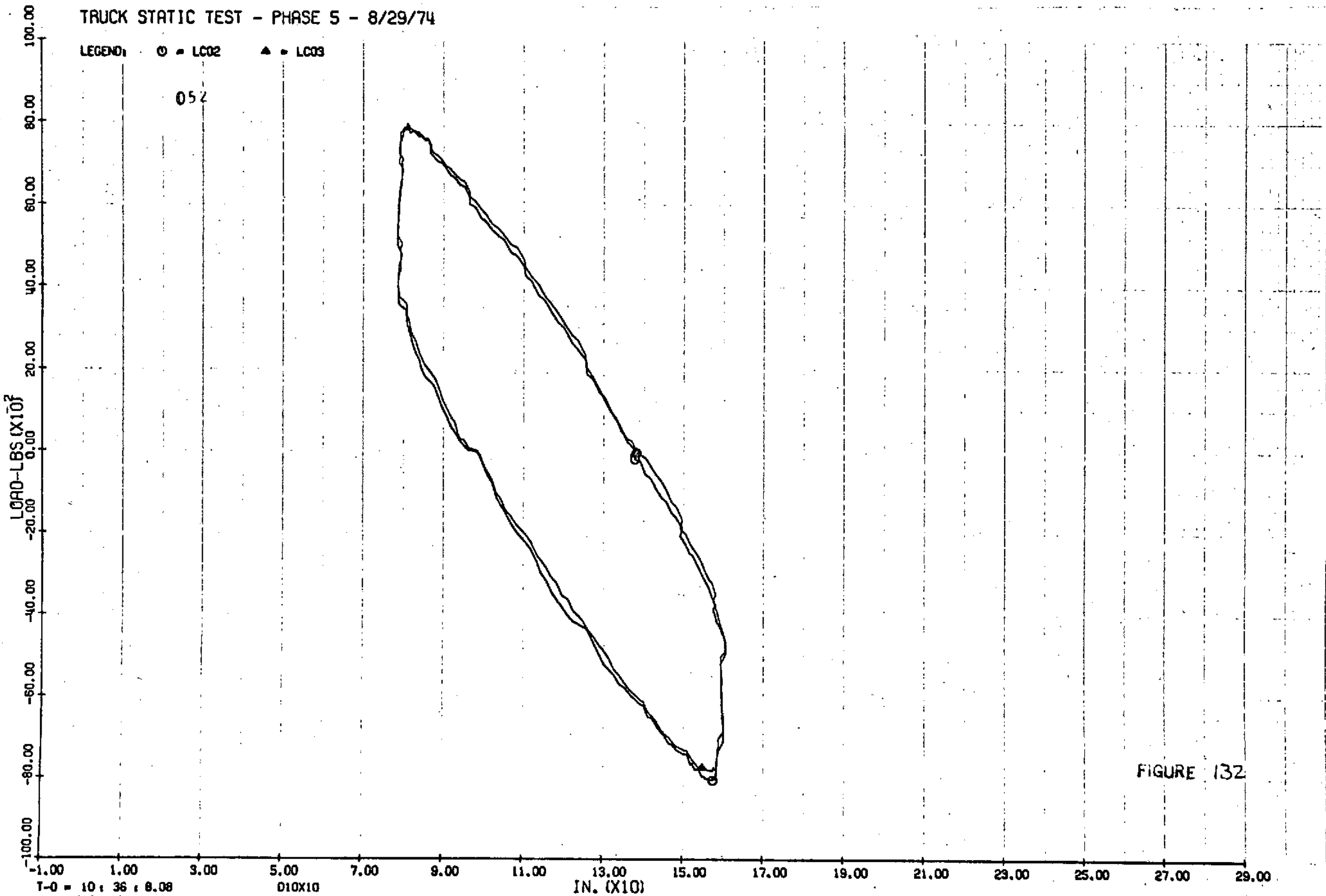

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
052
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 36 : 8.08
D10X10

FIGURE 132

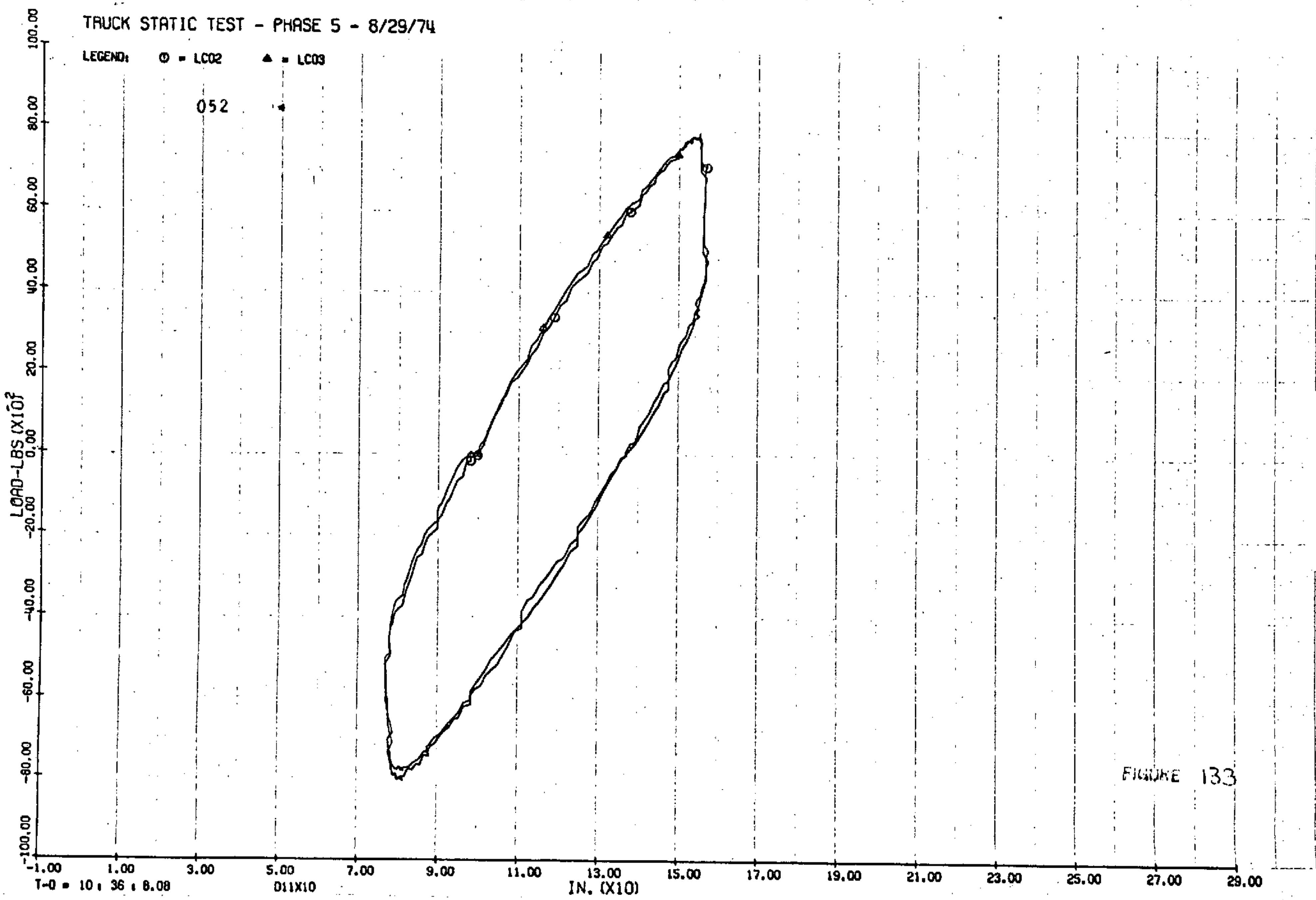
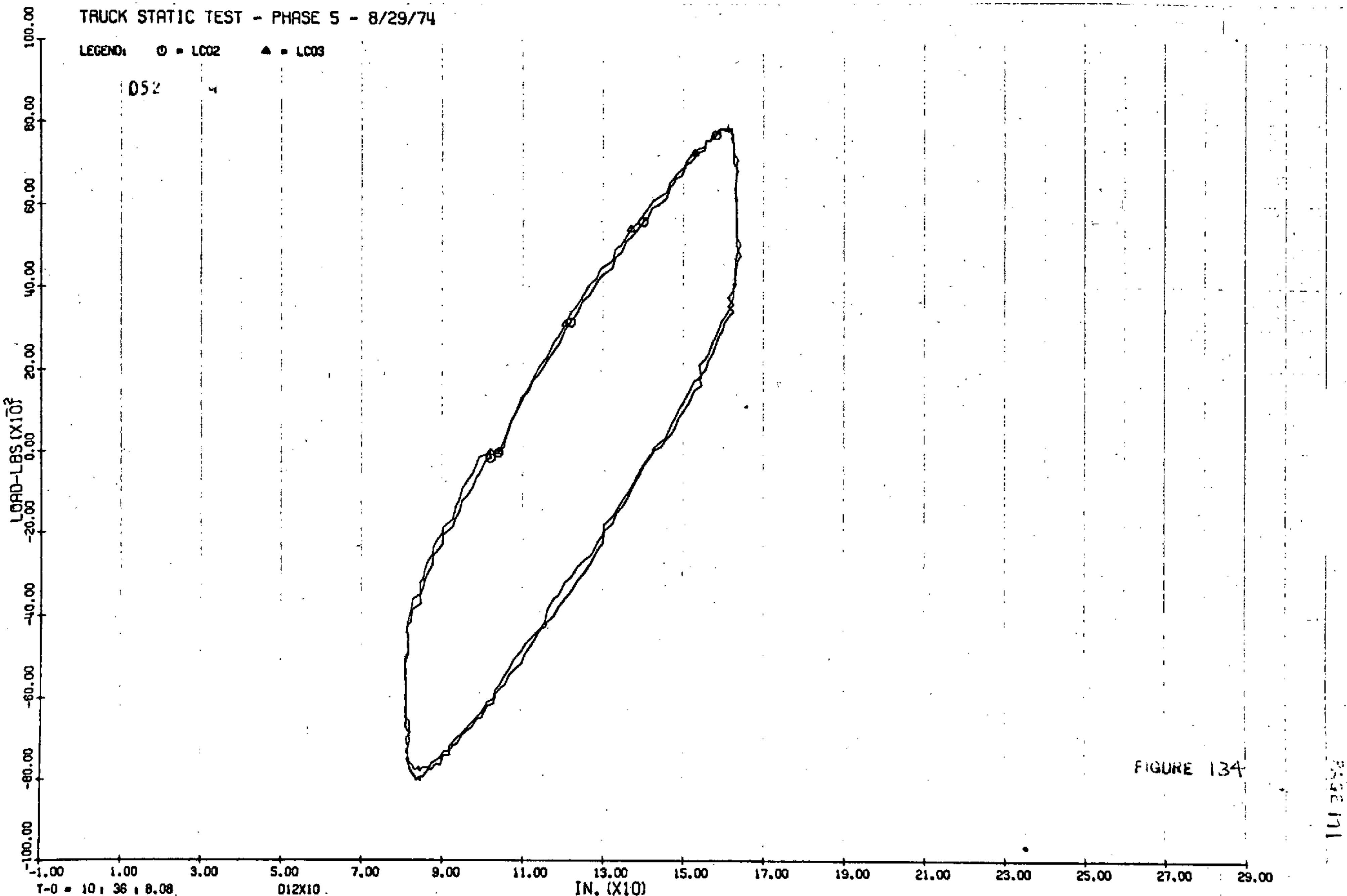
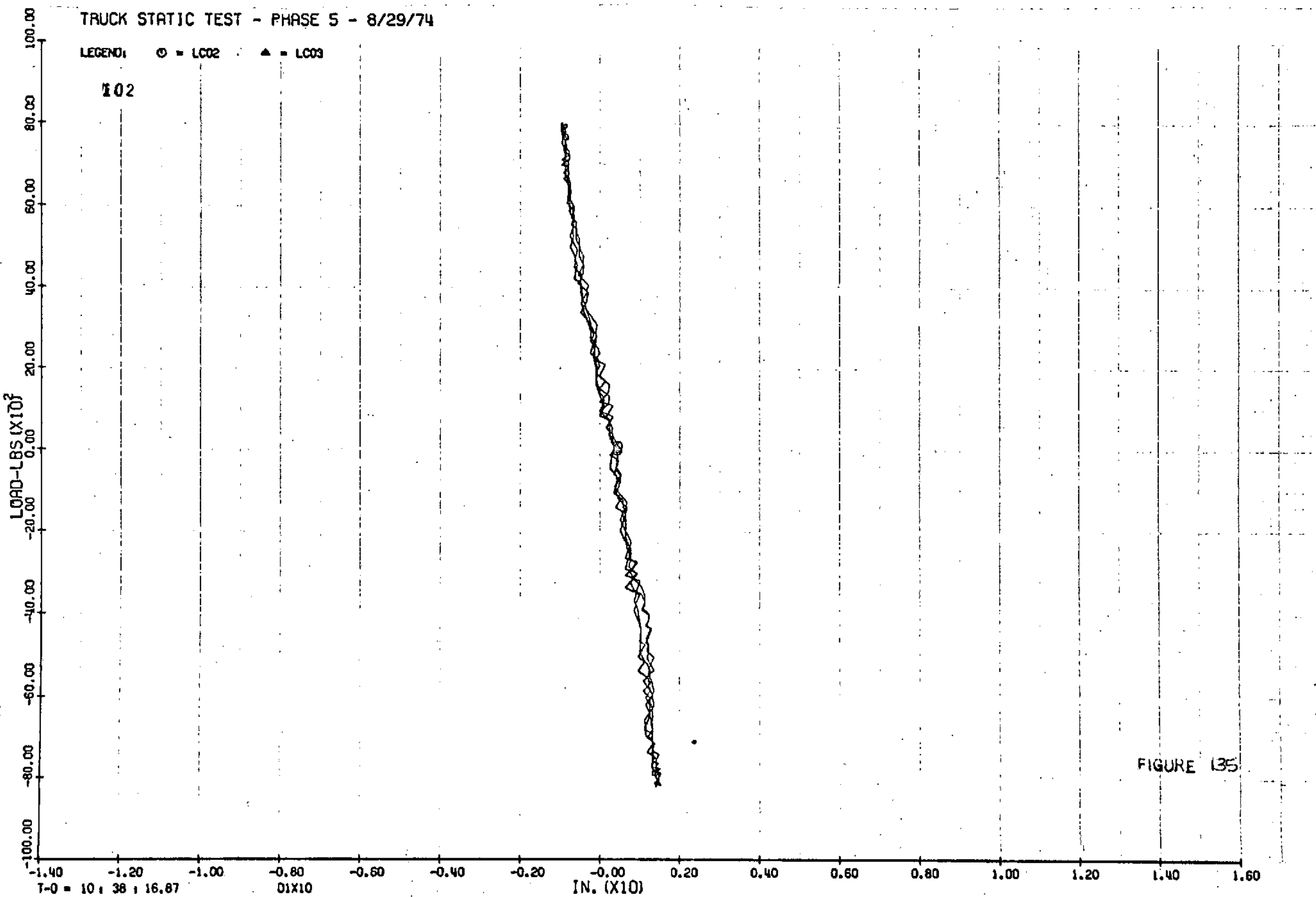

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
052
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 36 : 8.08
D11X10

FIGURE 133



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
052
LOAD-LBS(X10^{-2})
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 36 : 8.08
012X10

FIGURE 134



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
102
LOAD-LBS (X10)^2
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 38 : 16.87
D1X10
IN. (X10)

FIGURE 135

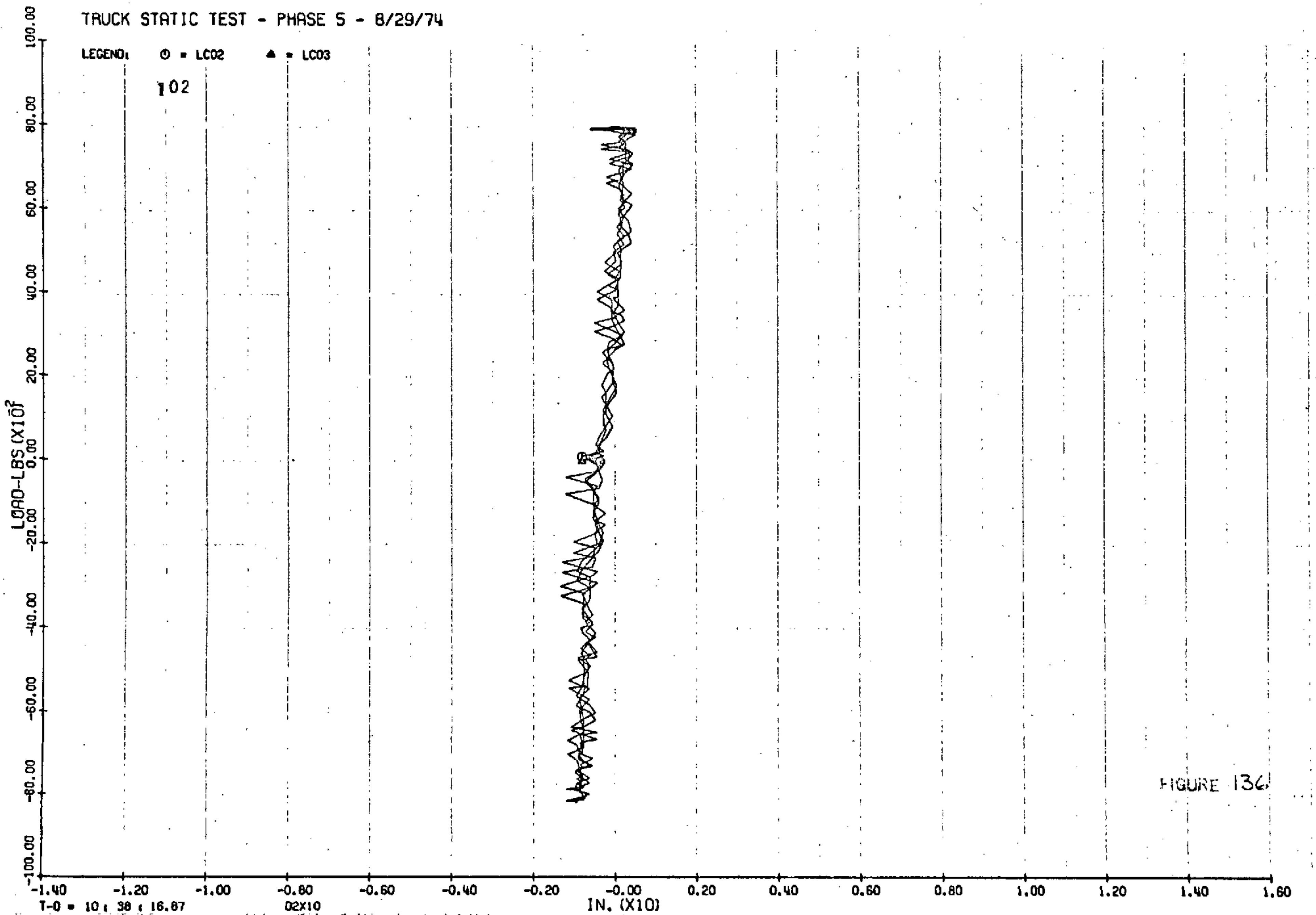

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊕ = LC02 ▲ = LC03
102
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 38 : 16.87
02X10

FIGURE 136

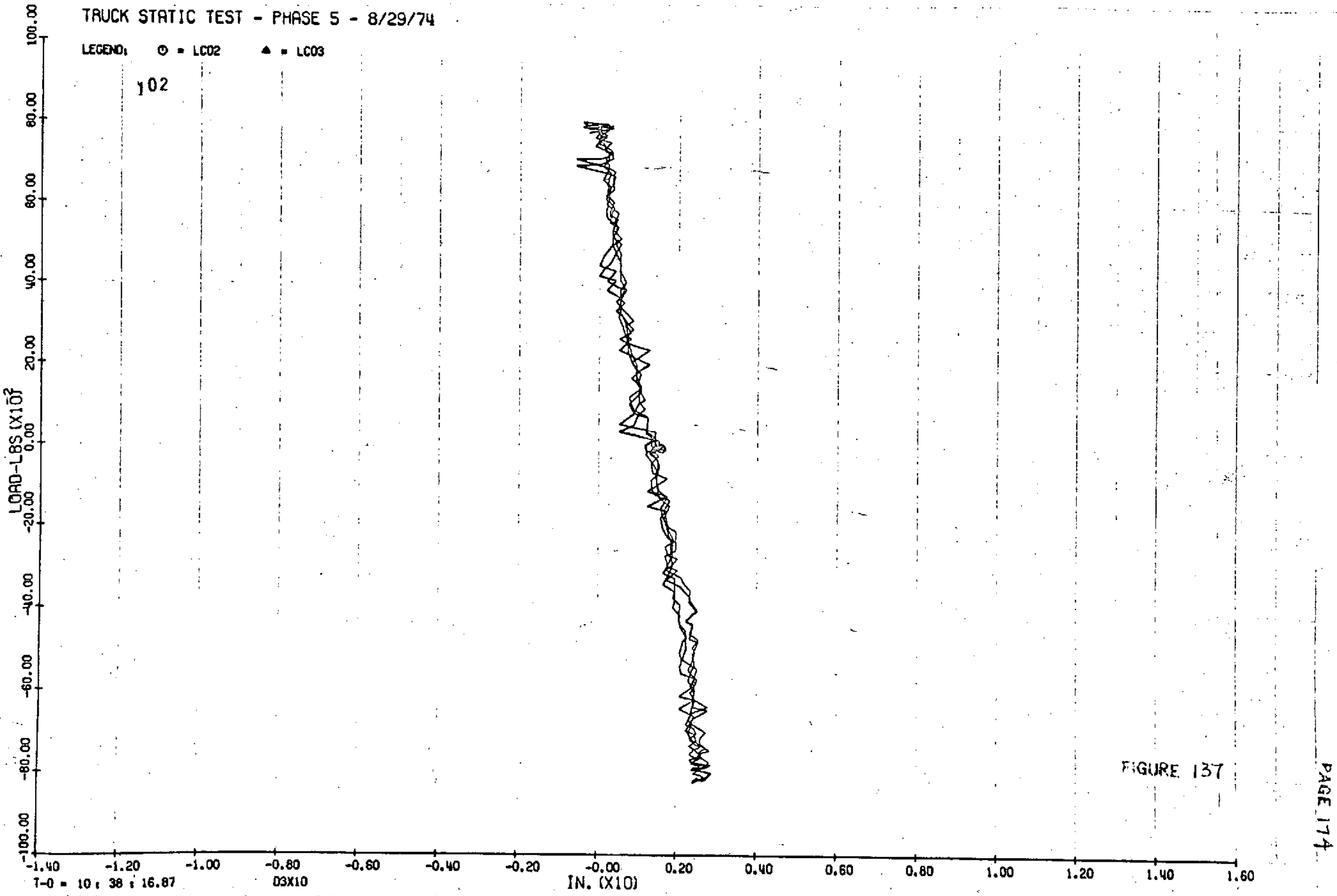
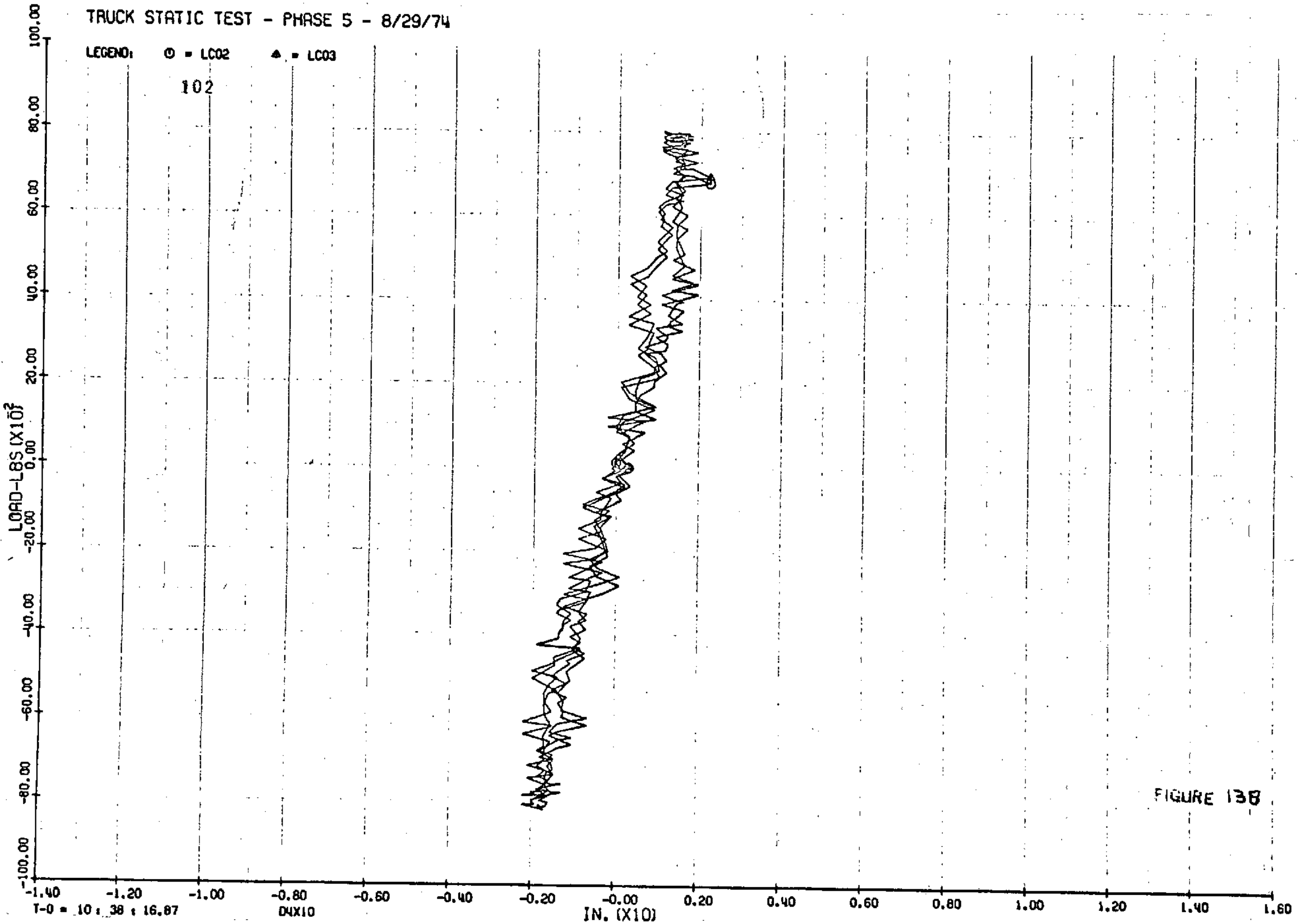
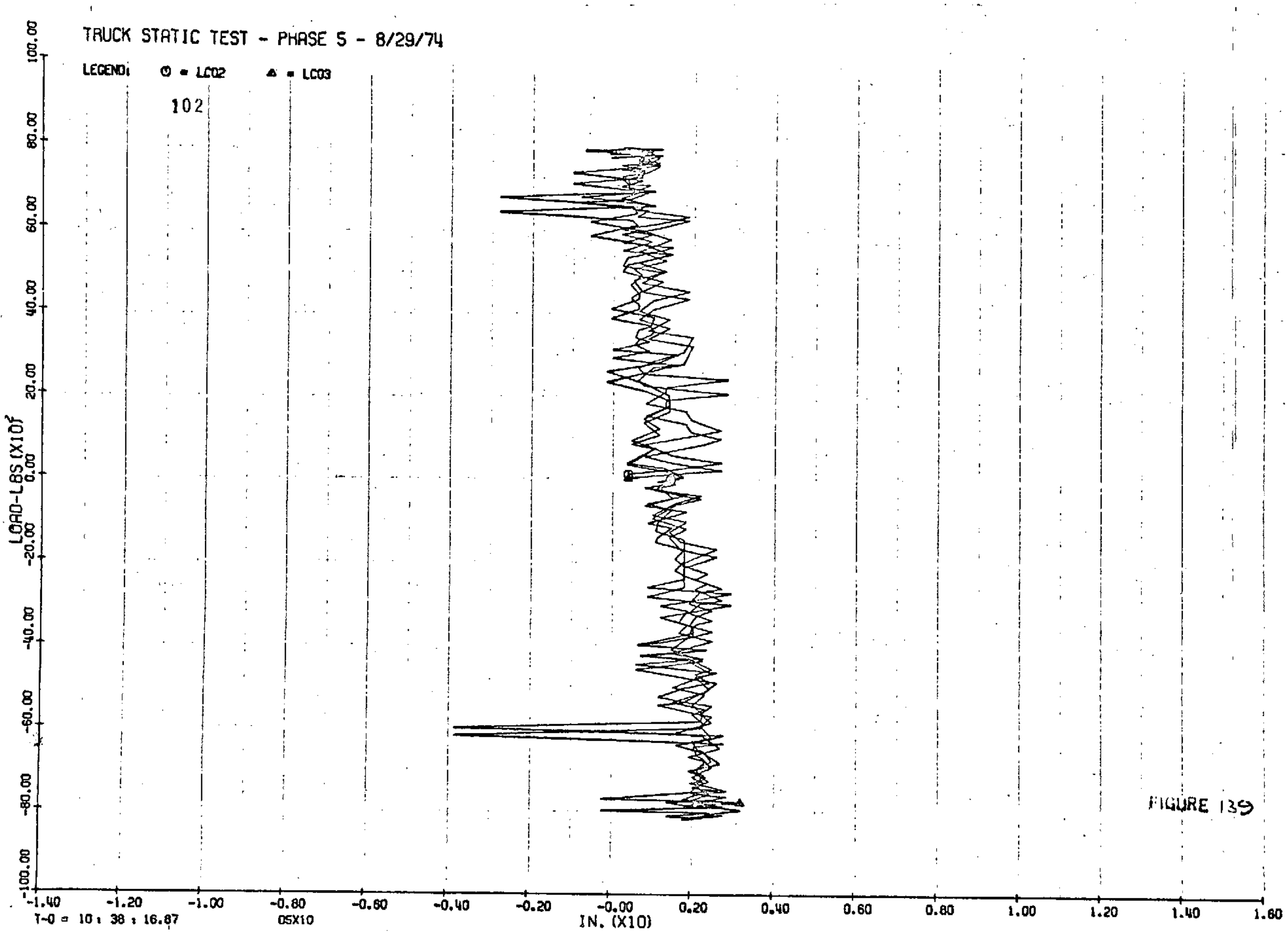

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
102
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 38 : 16.87
D3X10
IN. (X10)

FIGURE 137


TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
102
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 38 : 16.87
D4X10
IN. (X10)
FIGURE 138



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
102
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 38 : 16.87
05X10

FIGURE 139

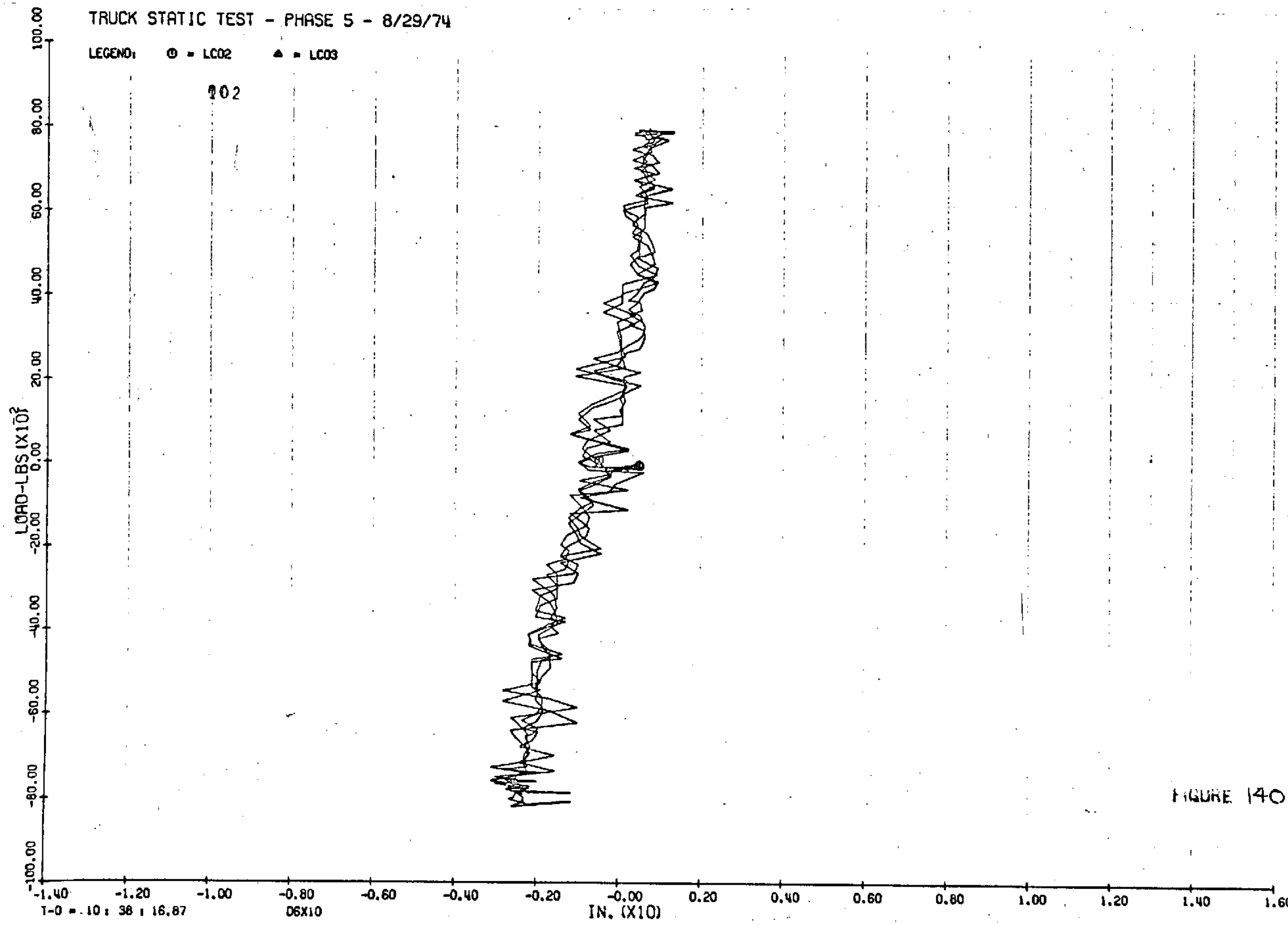


FIGURE 140

177

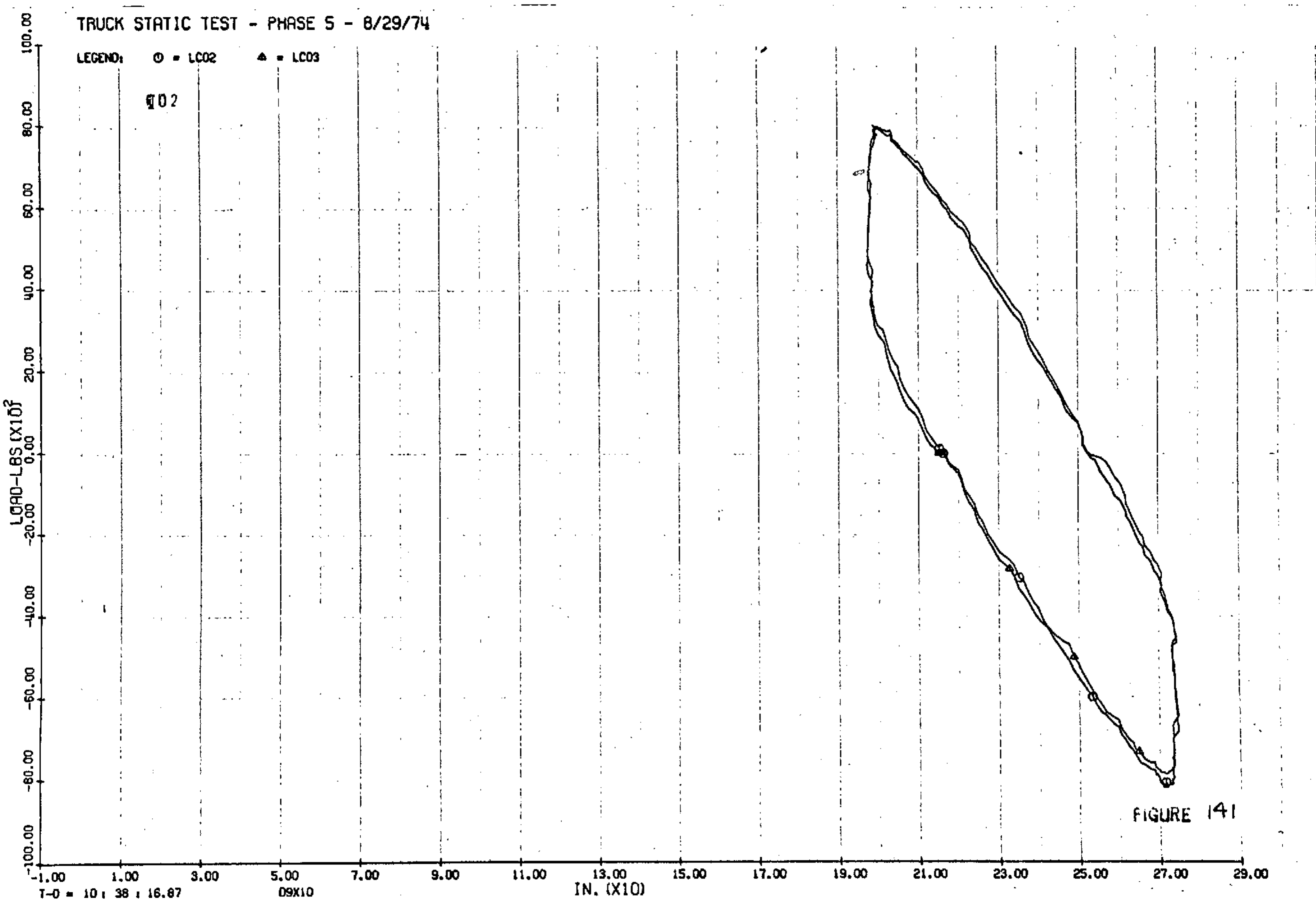

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: O = LC02 △ = LC03
102
LOAD-LBS (X10²)
IN. (X10)
T-0 = 10 : 38 : 16.87
D9X10

FIGURE 141

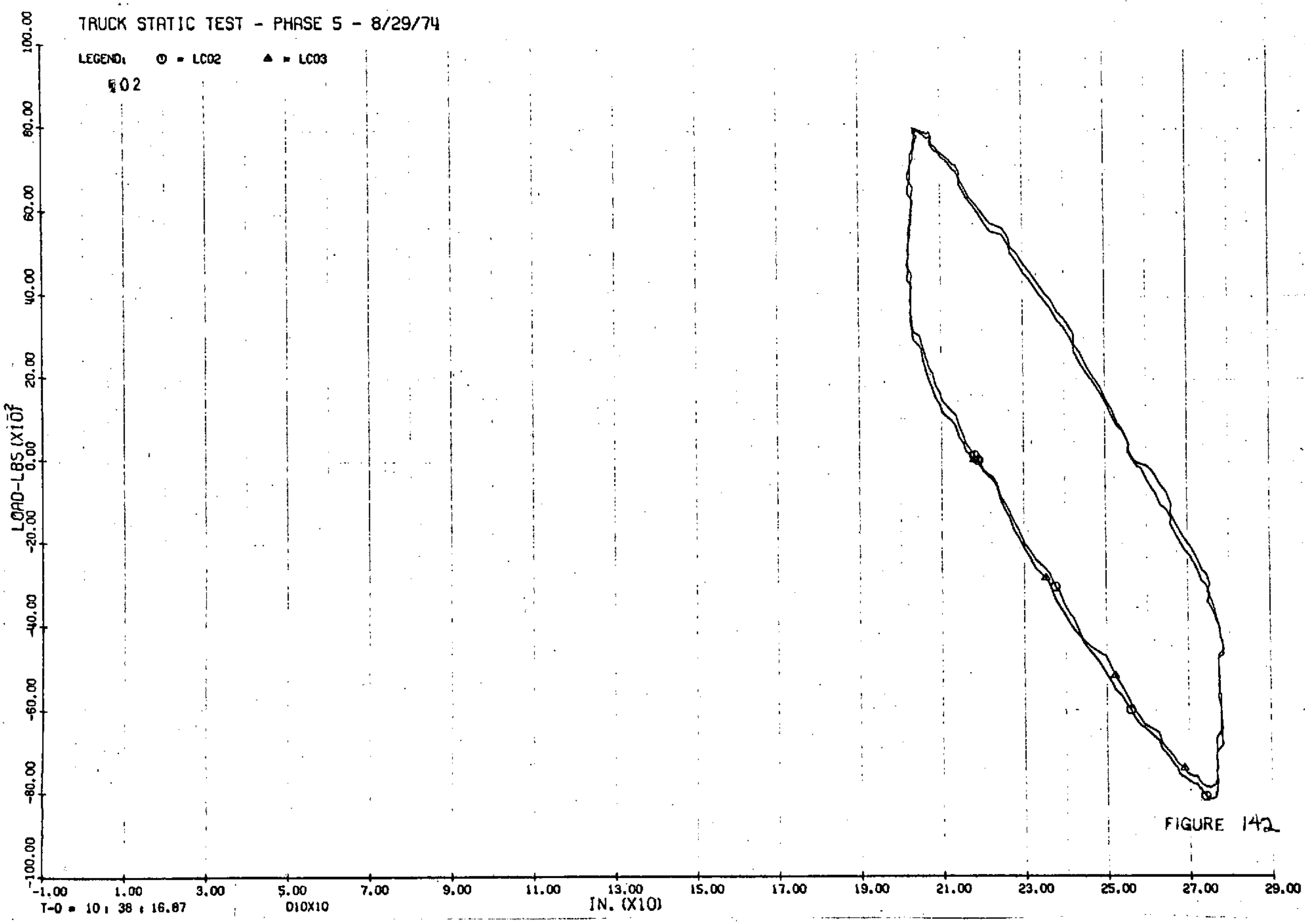

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
502
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 38 : 16.87
D10X10

FIGURE 142

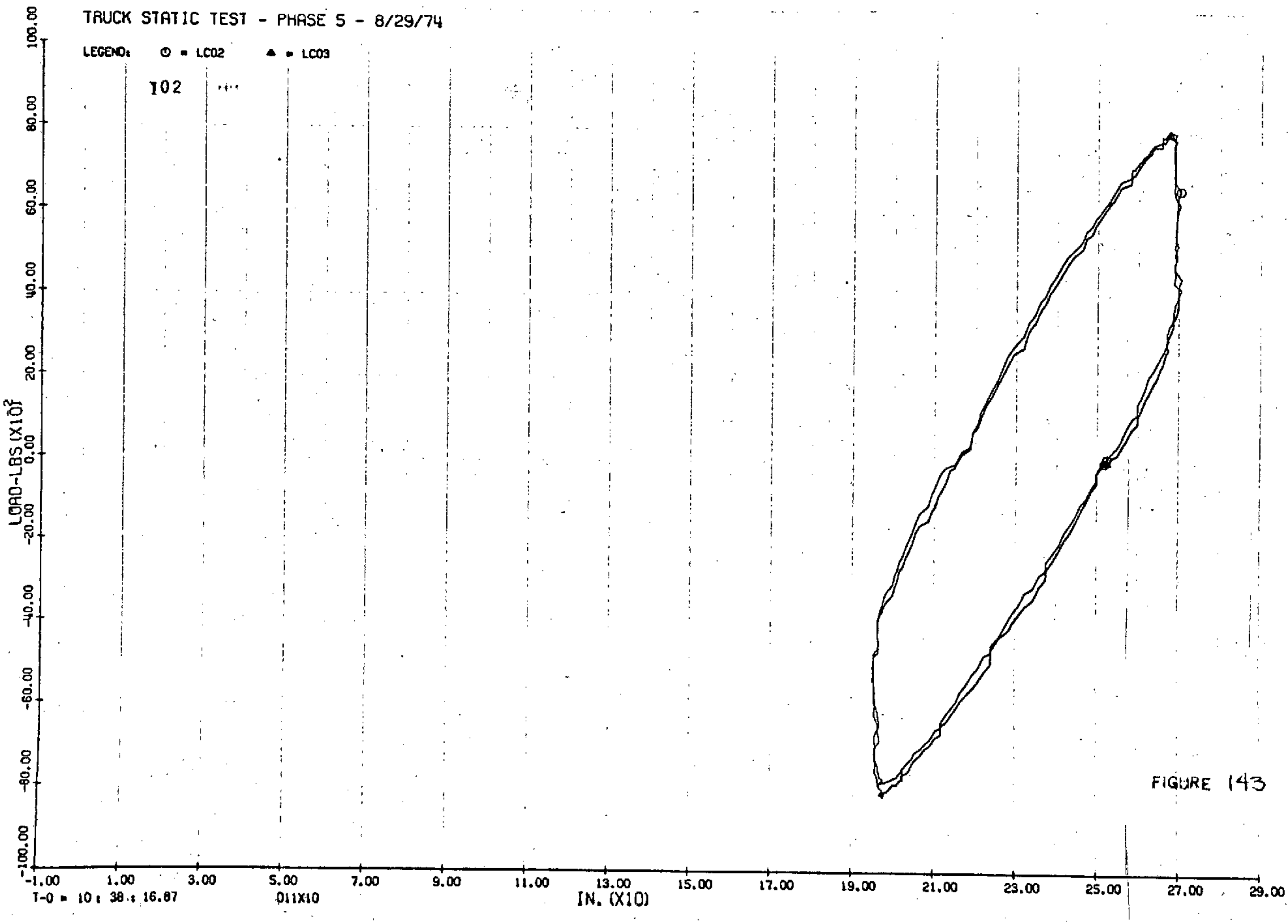

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
102
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 38 : 16.87
D11X10

FIGURE 143

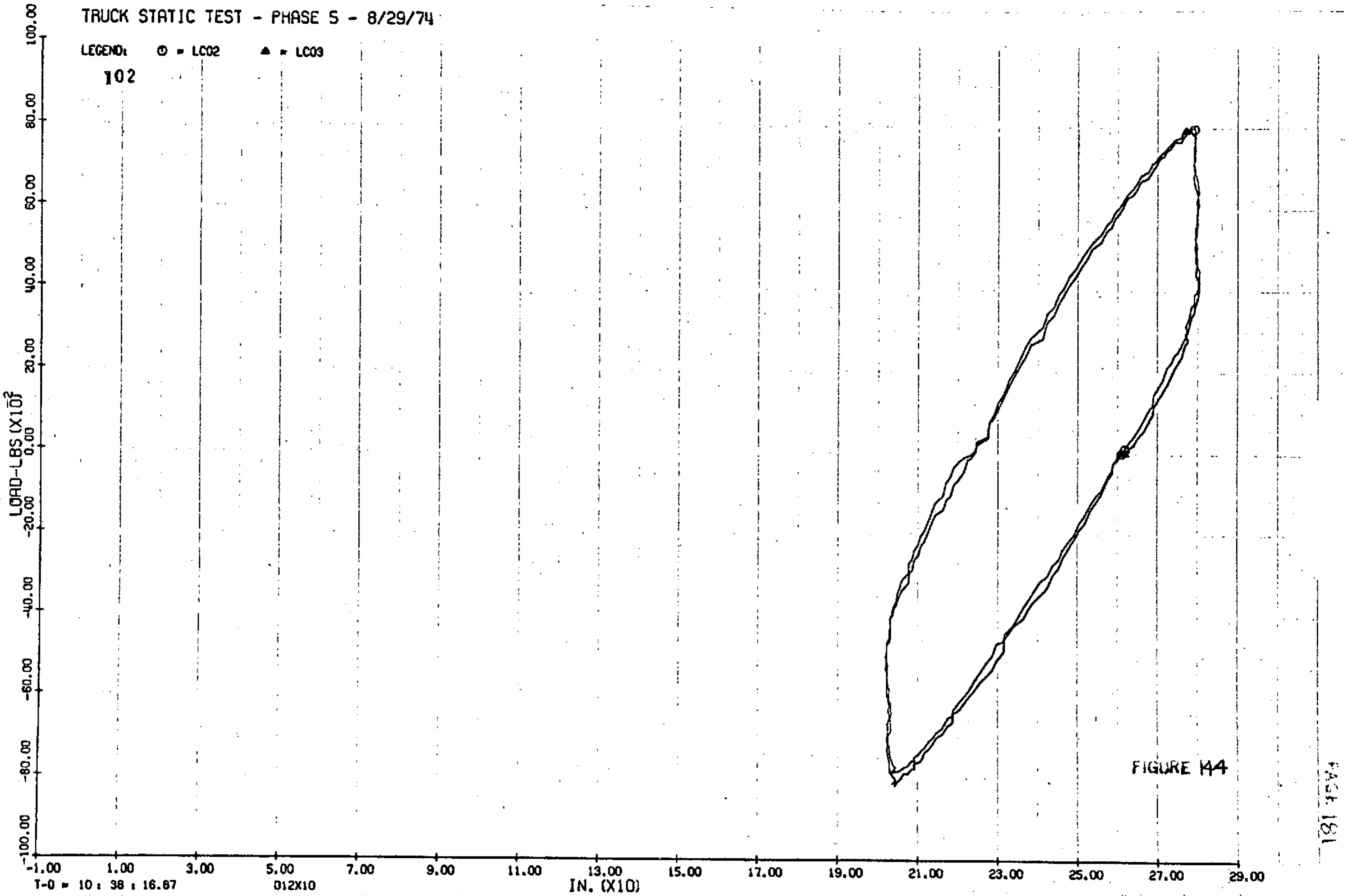
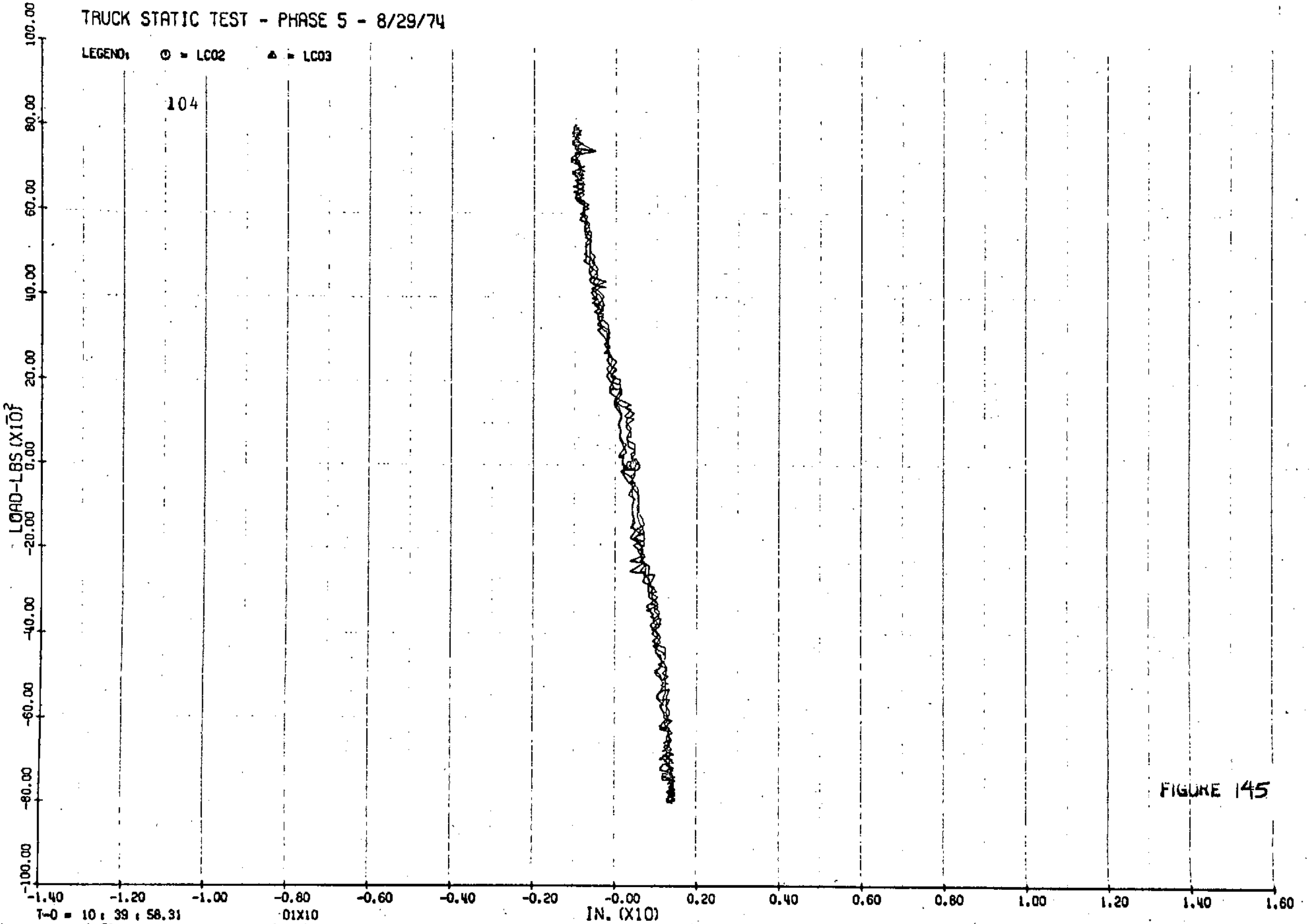

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
102
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 38 : 16.87
D12X10

FIGURE 144



TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
104
LOAD-LBS (X10)[2]
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
T-0 = 10 : 39 : 58.31
.01X10
IN. (X10)

FIGURE 145

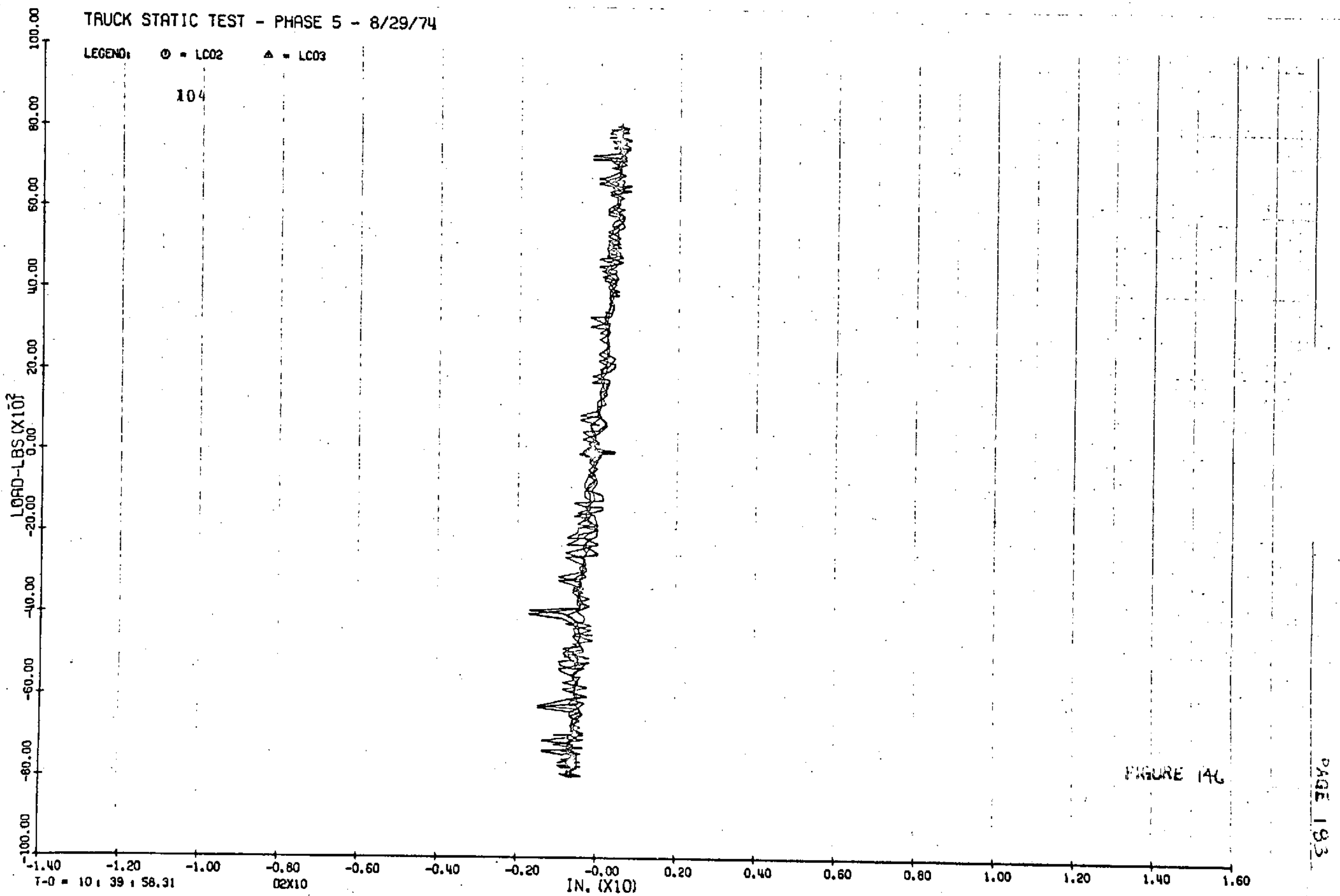

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
104
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 39 : 58.31
02X10

FIGURE 146

TRUCK STATIC TEST - PHASE 5 - 8/29/74

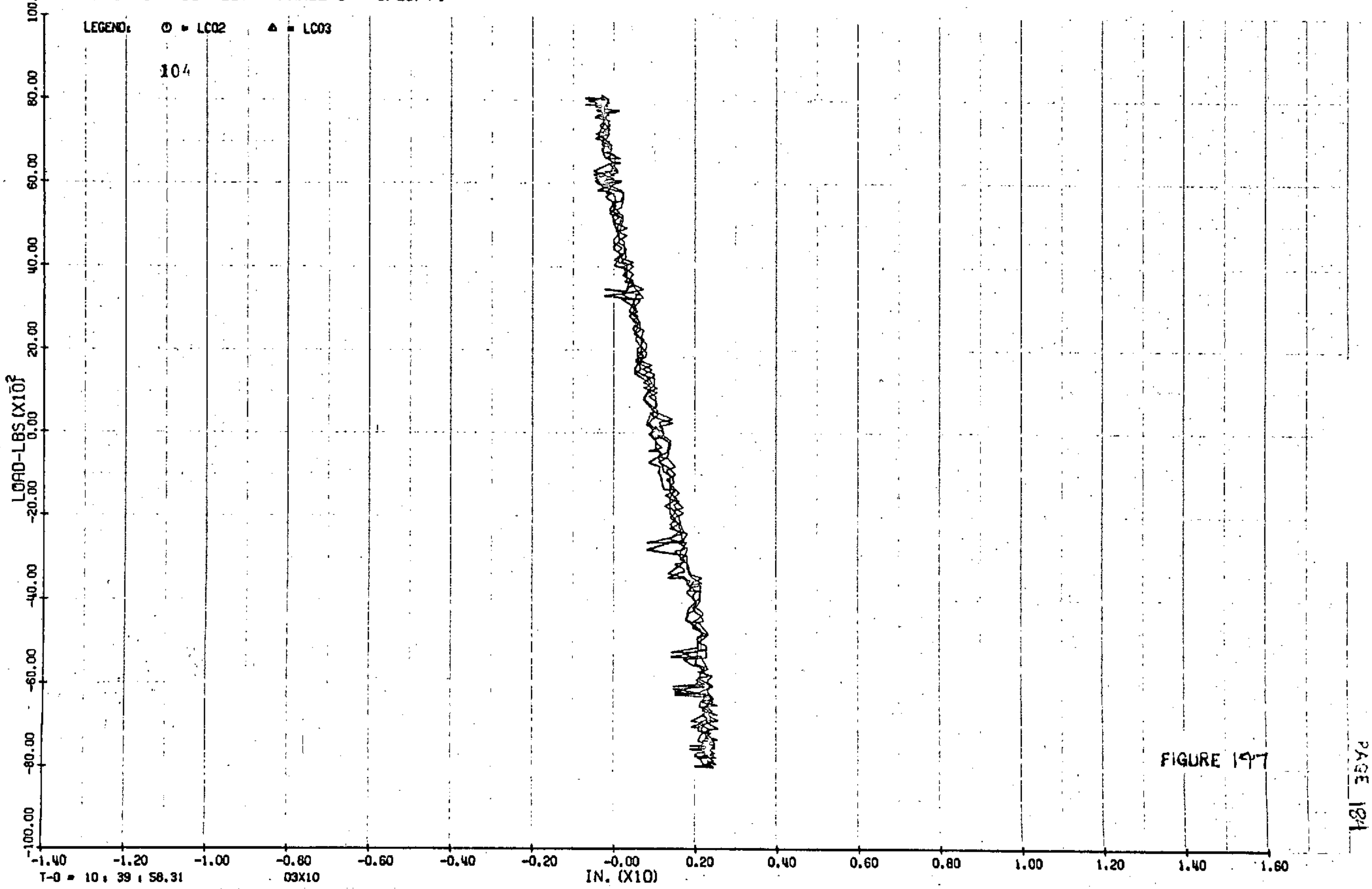


FIGURE 197

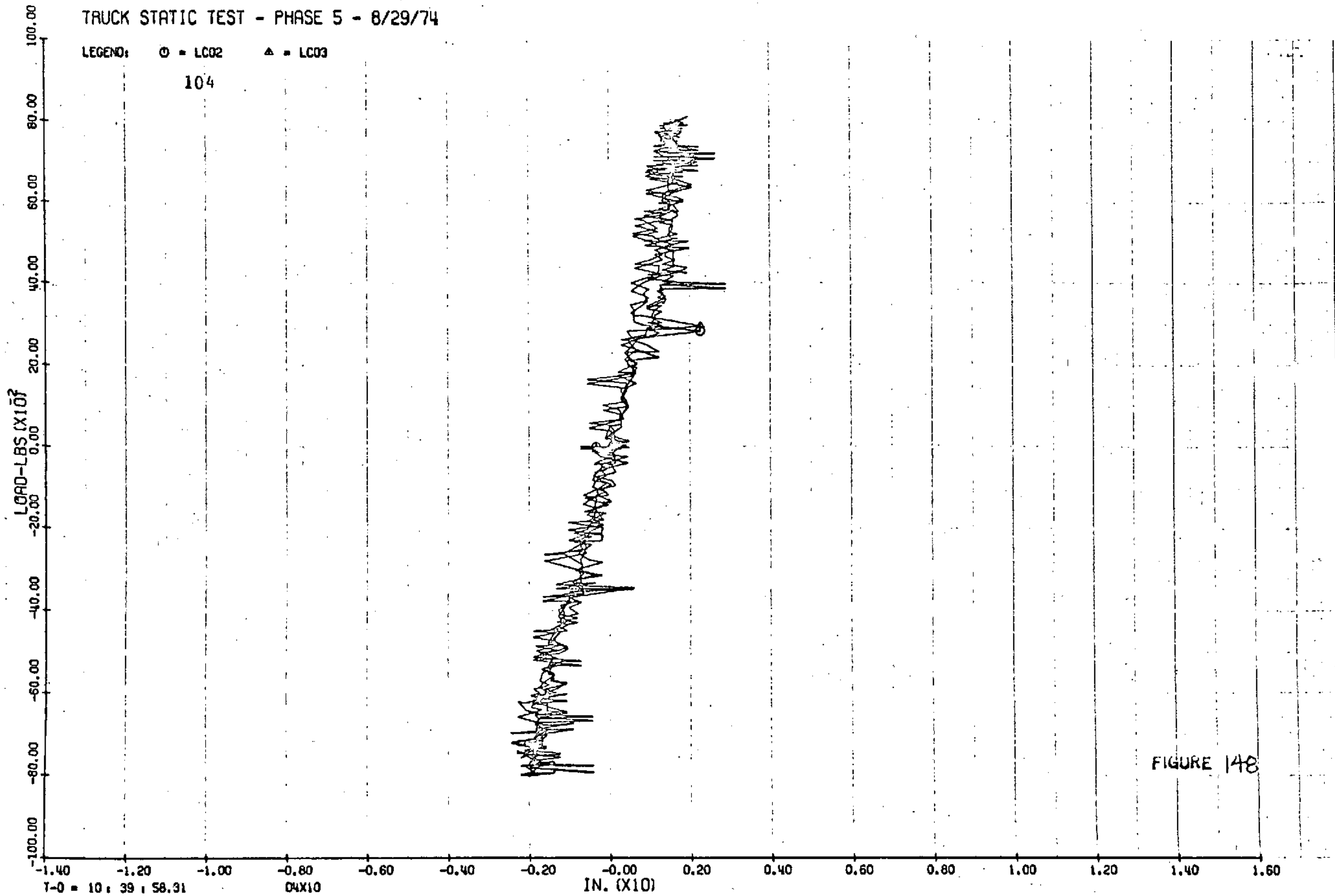
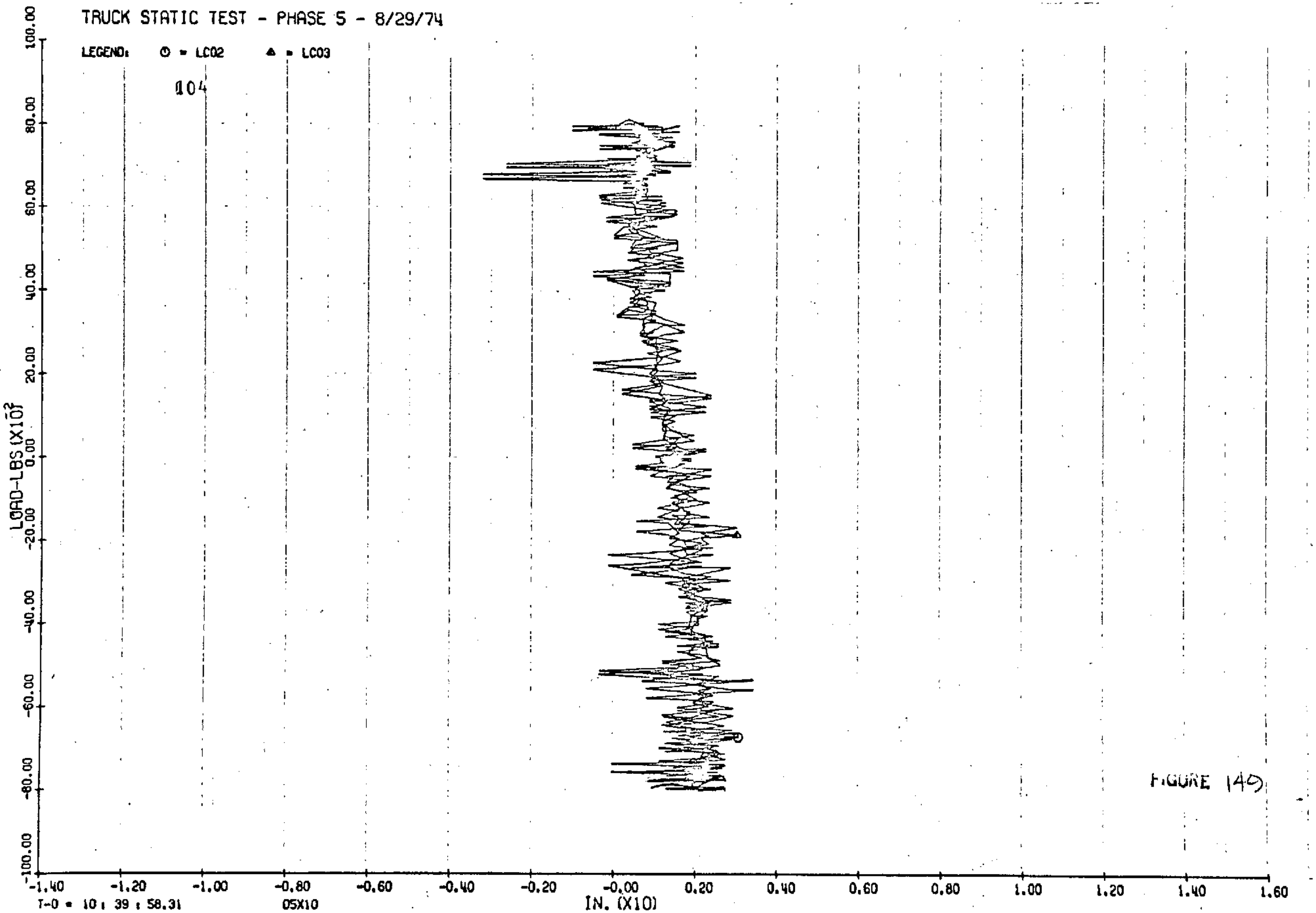

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
104
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 39 : 58.31
D4X10

FIGURE 148


TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
104
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 39 : 58.31
05X10
FIGURE 149

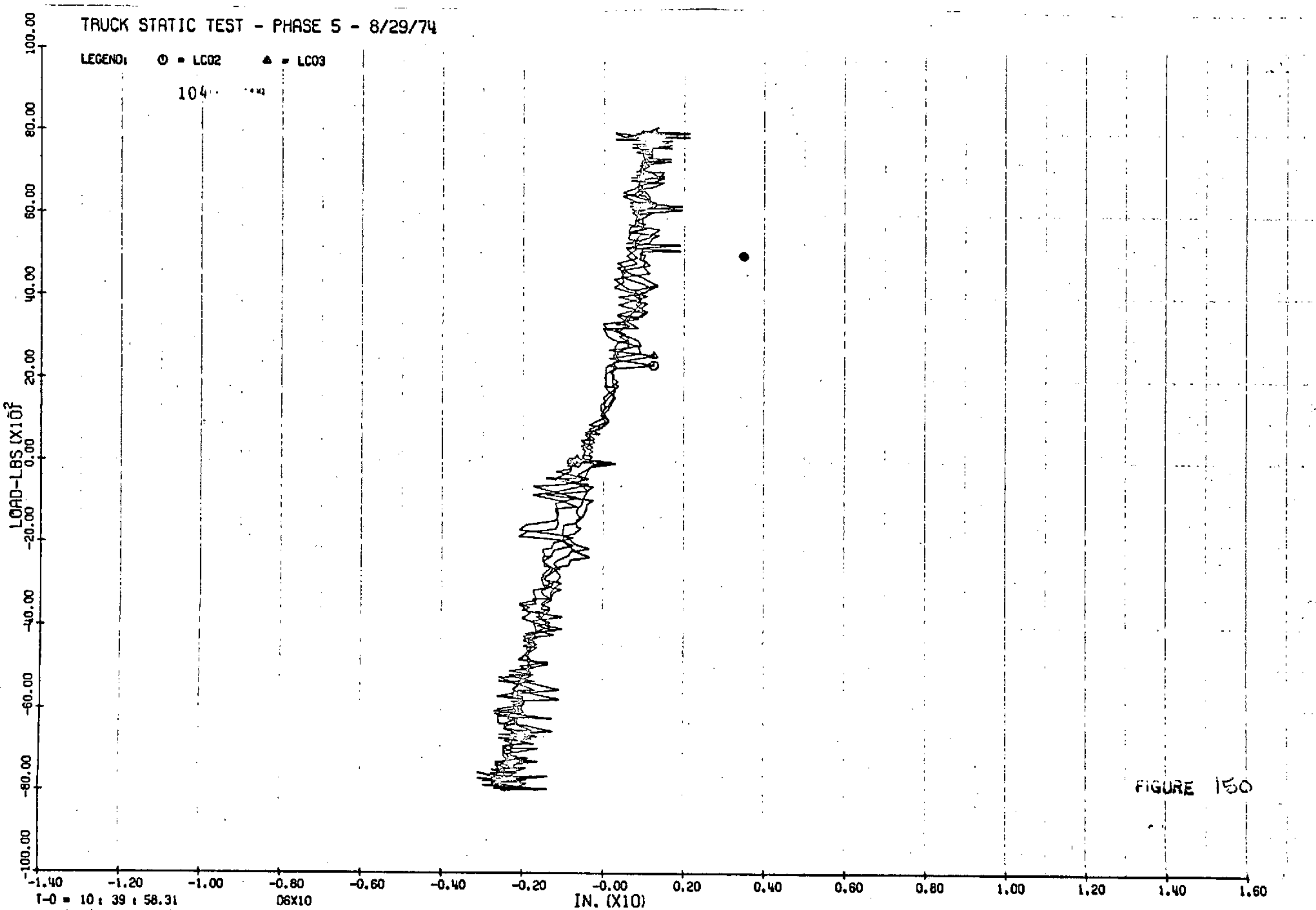

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 ▲ = LC03
104
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.40
-1.20
-1.00
-0.80
-0.60
-0.40
-0.20
-0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
IN. (X10)
T-0 = 10 : 39 : 58.31
D6X10

FIGURE 150

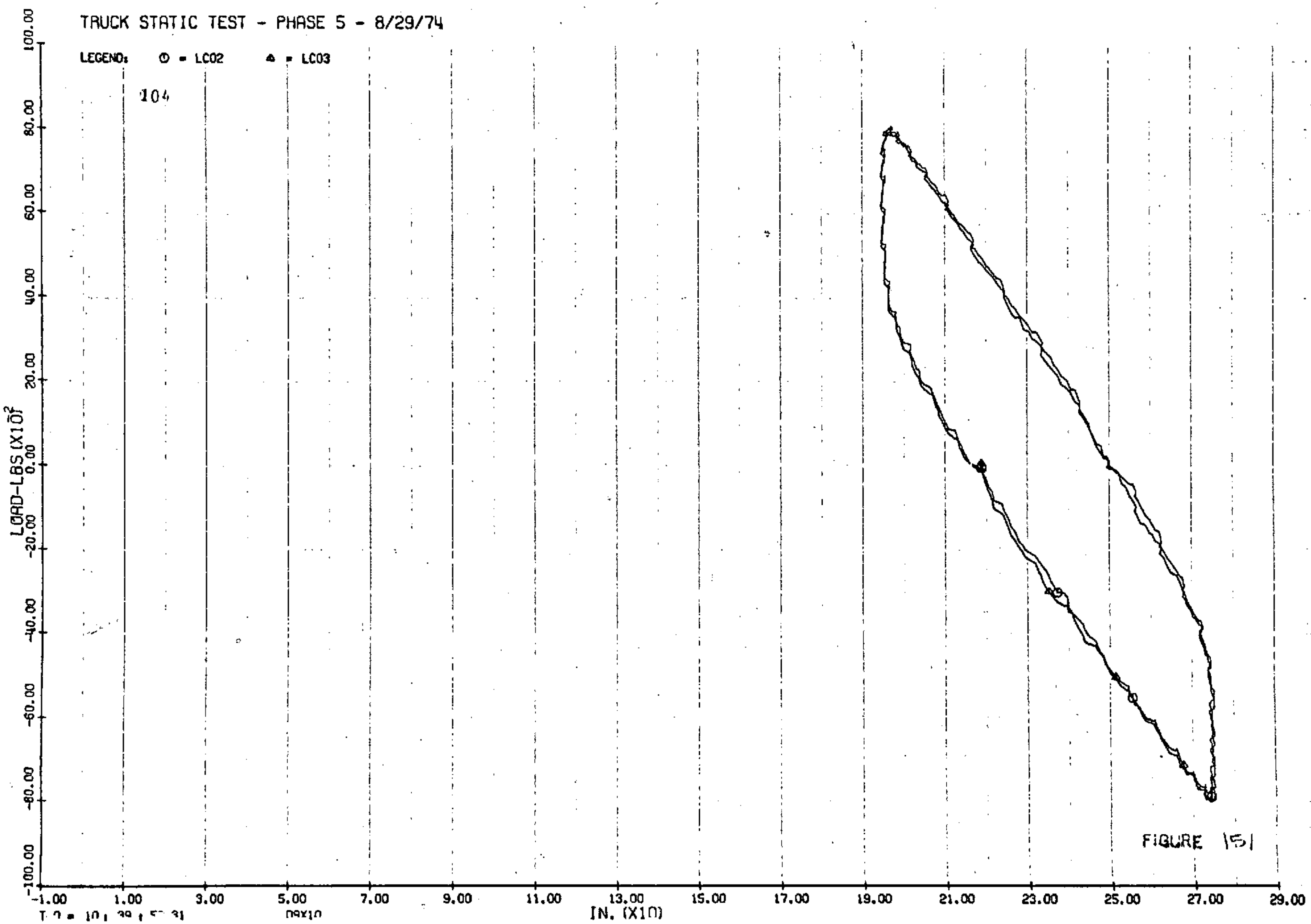

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
104
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)

FIGURE 151

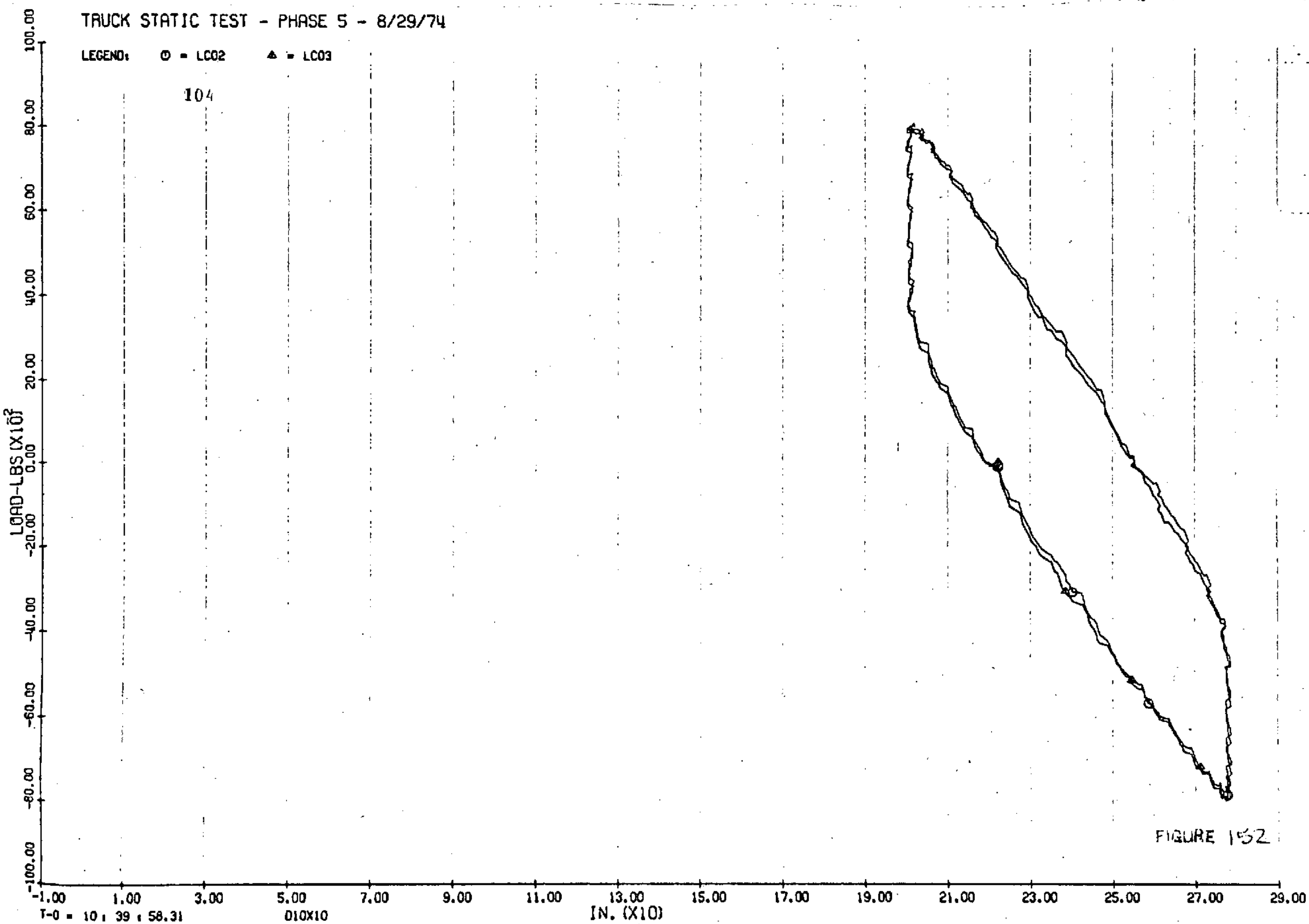

TRUCK STATIC TEST - PHASE 5 - 8/29/74
LEGEND: ⊙ = LC02 △ = LC03
104
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
17.00
19.00
21.00
23.00
25.00
27.00
29.00
IN. (X10)
T-0 = 10 : 39 : 58.31
010X10

FIGURE 152

TRUCK STATIC TEST - PHASE 5 - 8/29/74

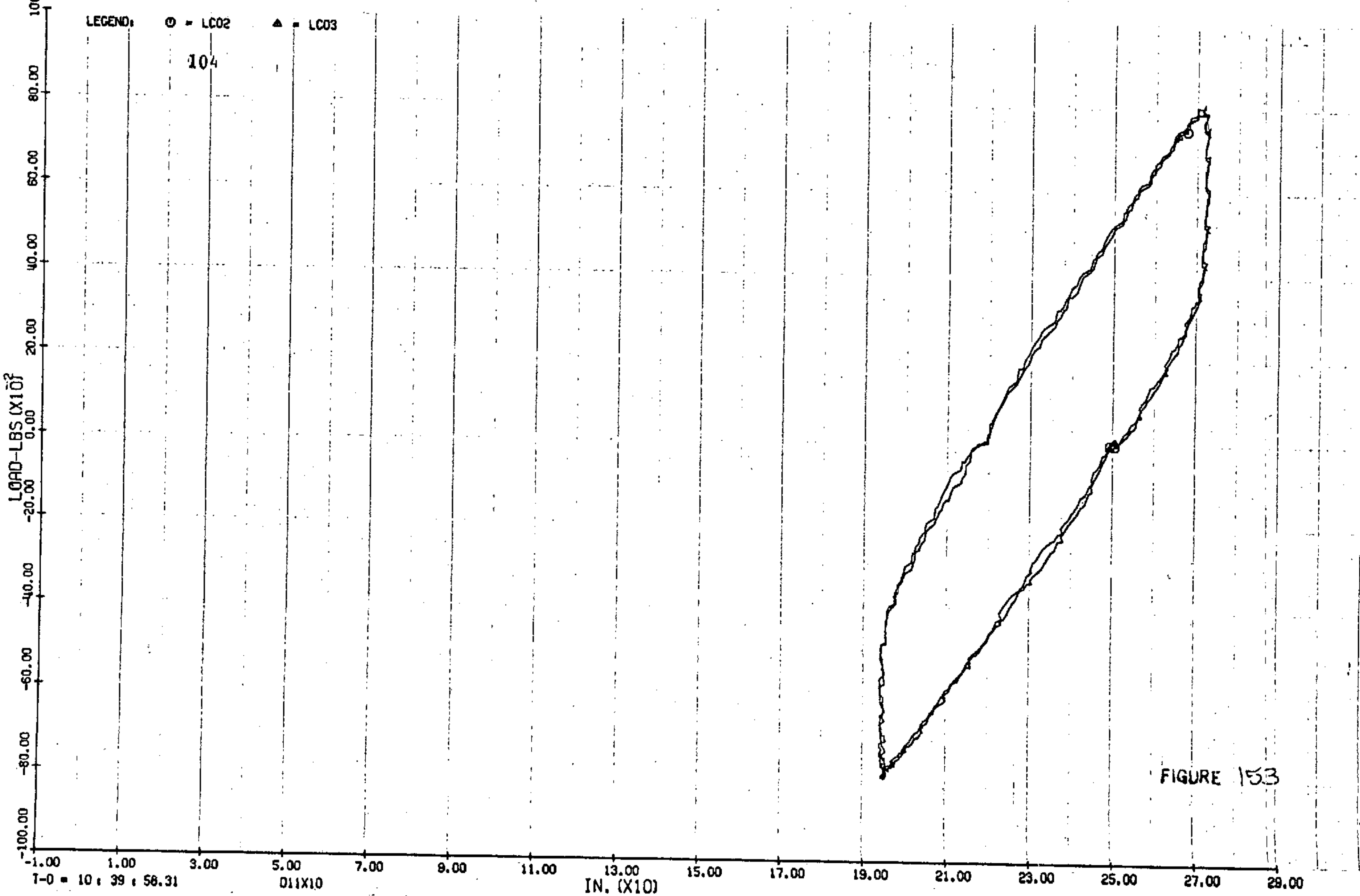


FIGURE 153

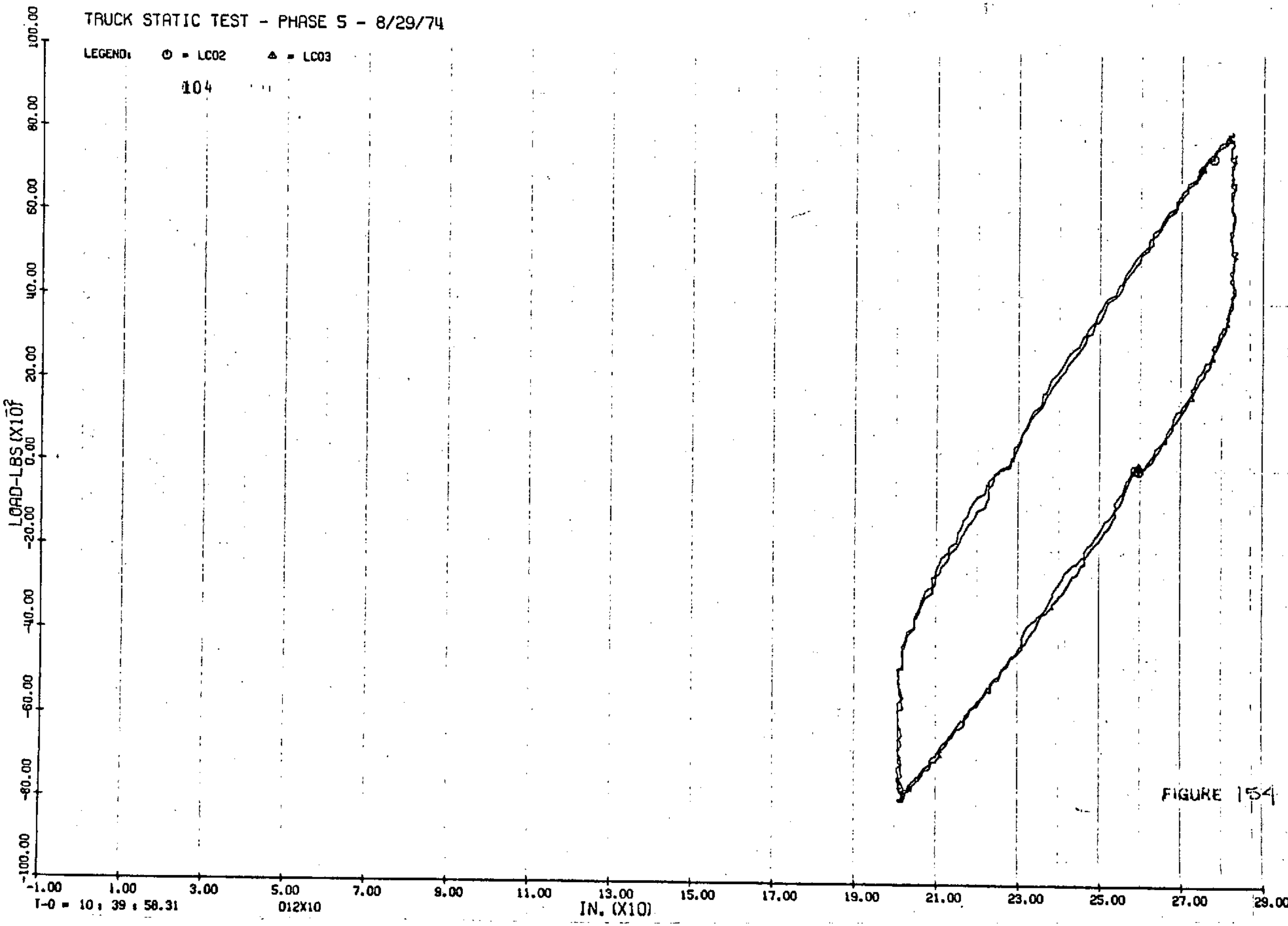


FIGURE 154

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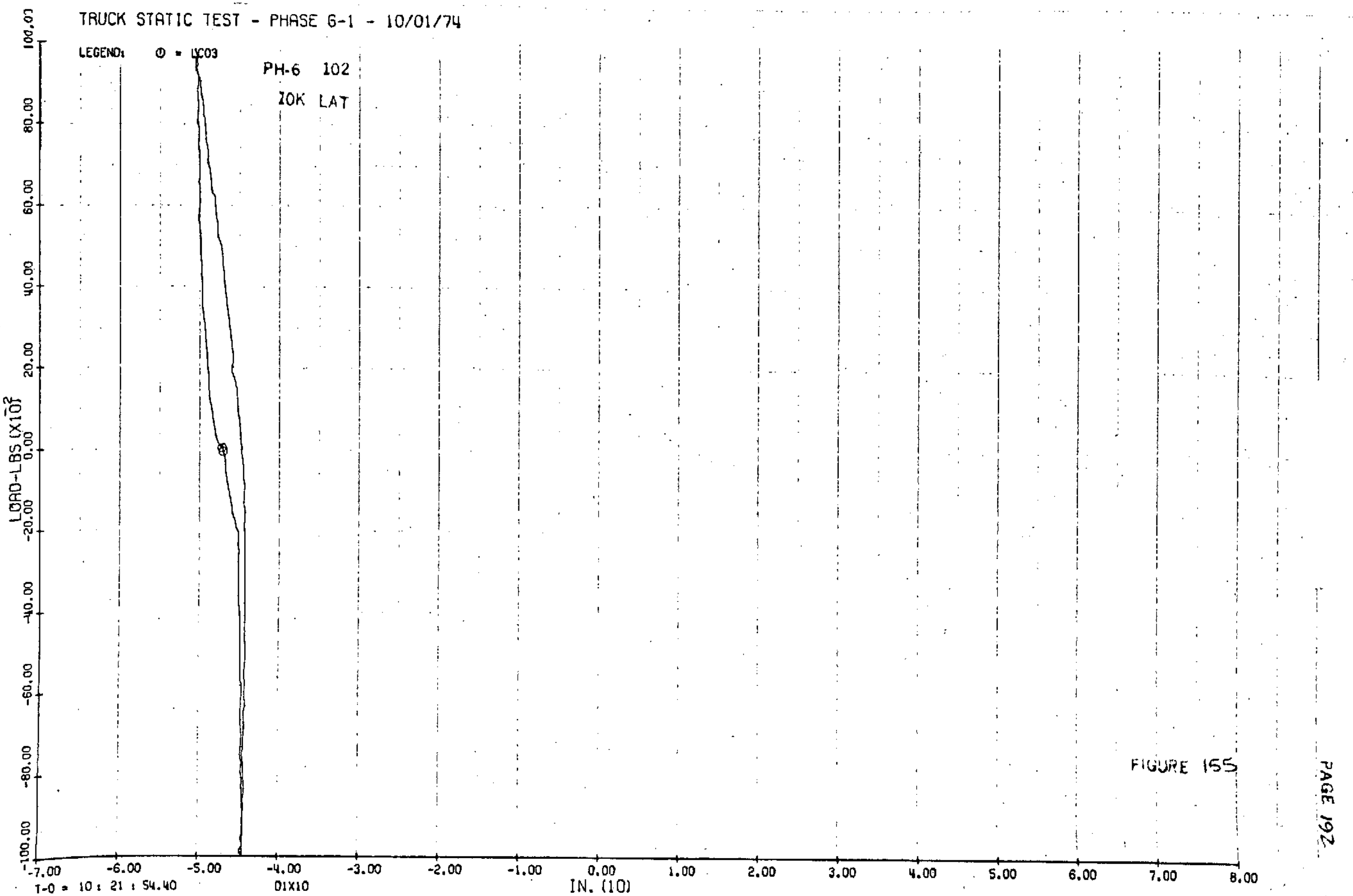
TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ⊕ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
T-0 = 10 : 21 : 54.40
D1X10
IN. (10)

FIGURE 155

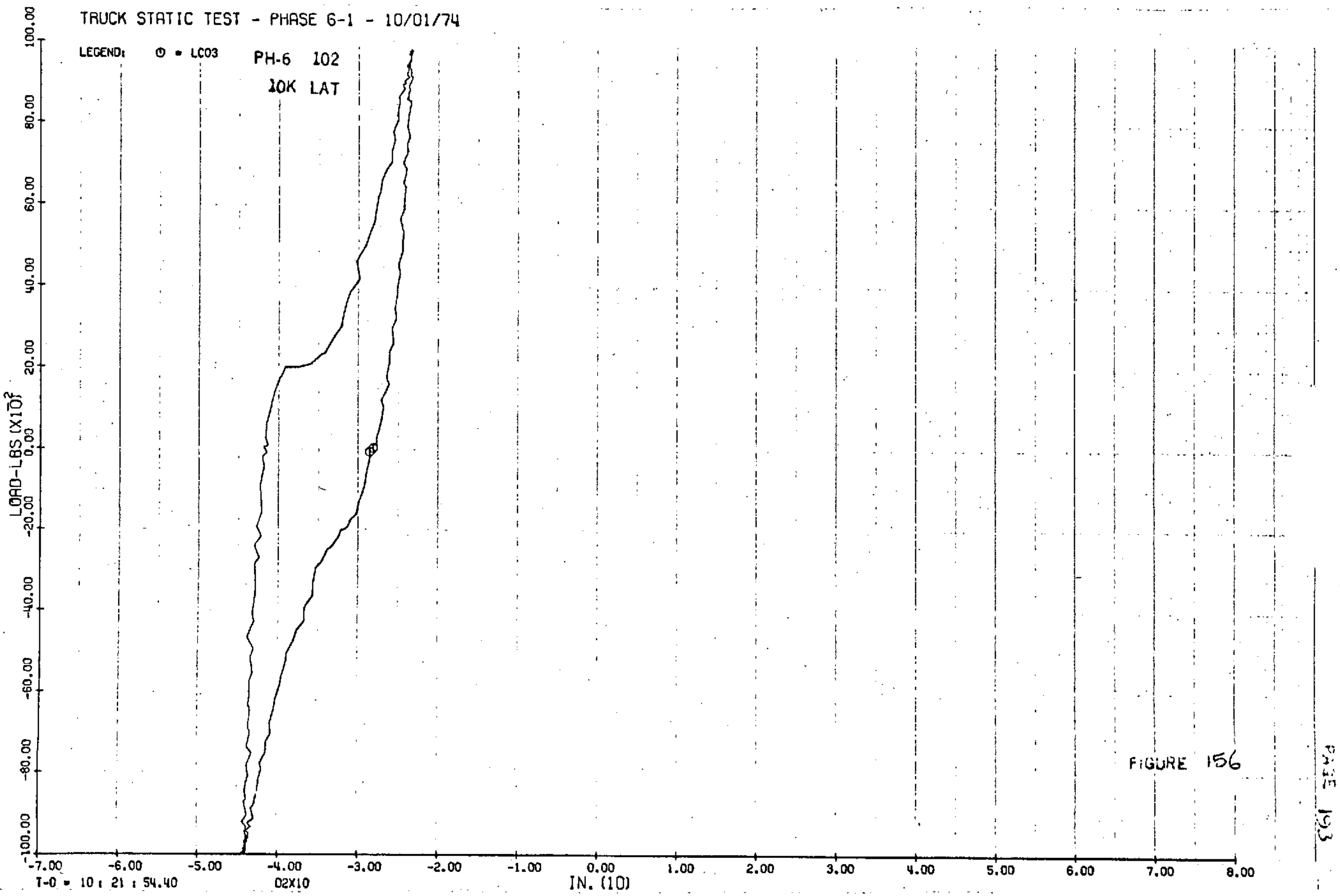

FIGURE 156

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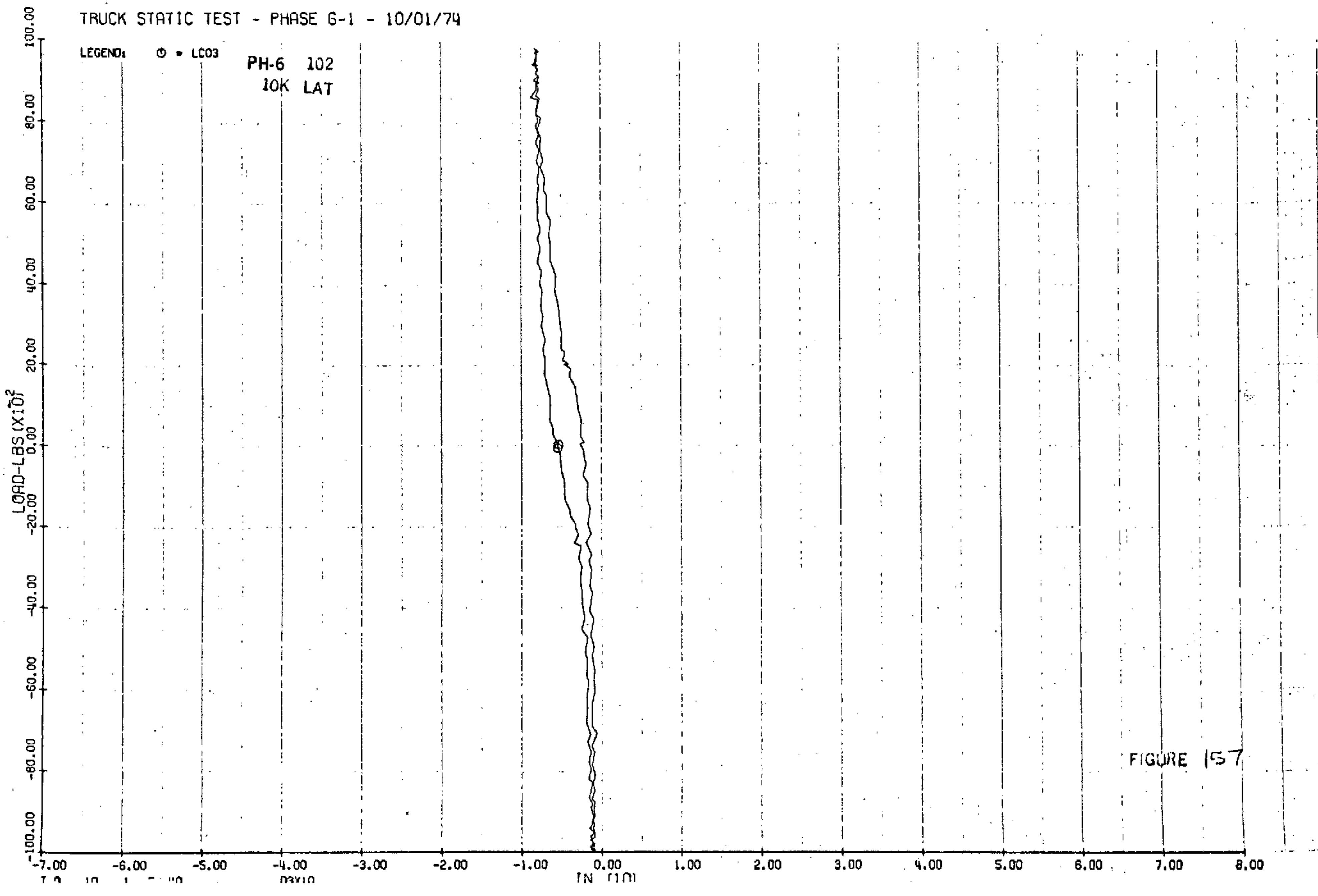

TRUCK STATIC TEST - PHASE G-1 - 10/01/74
LEGEND: ⊙ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN (10)

FIGURE 157

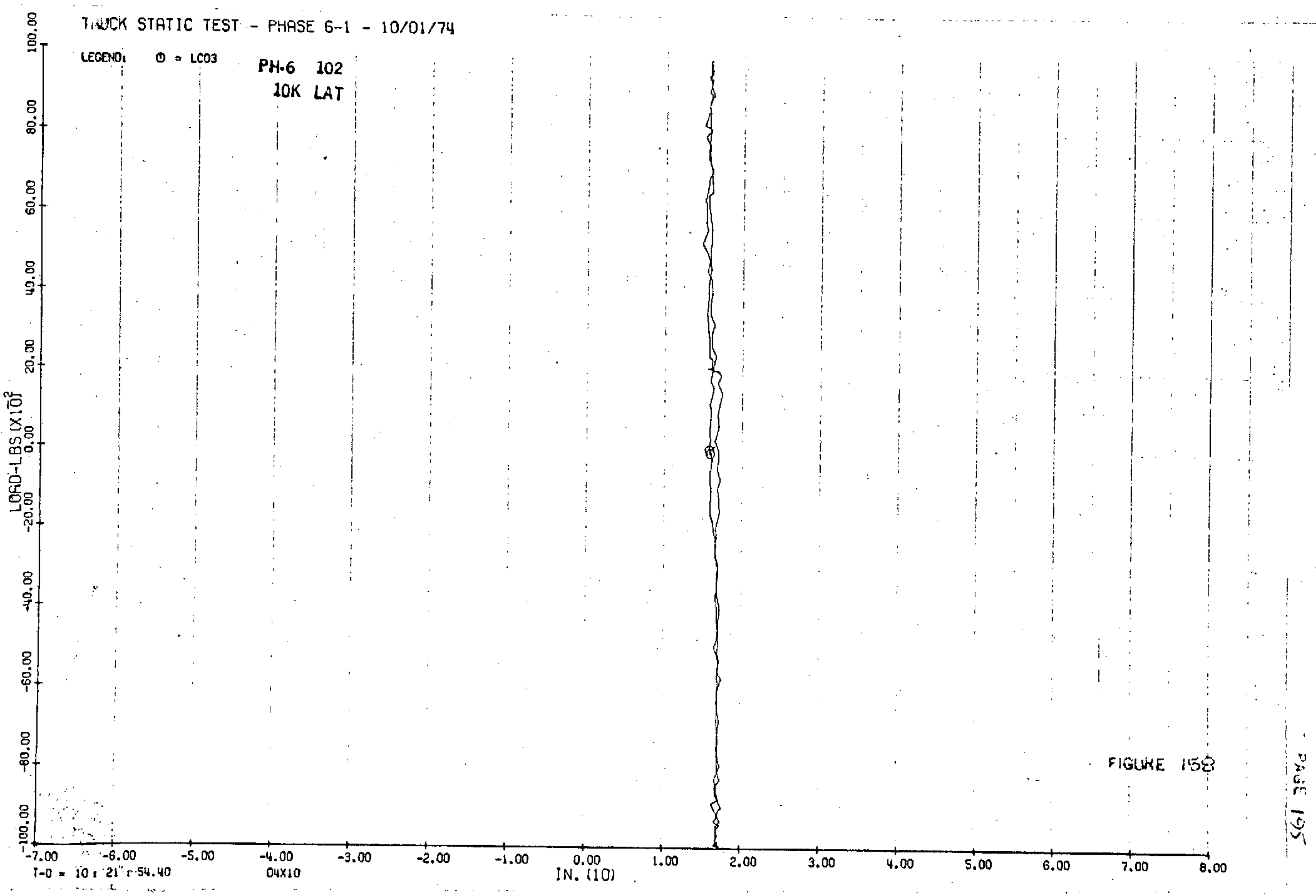
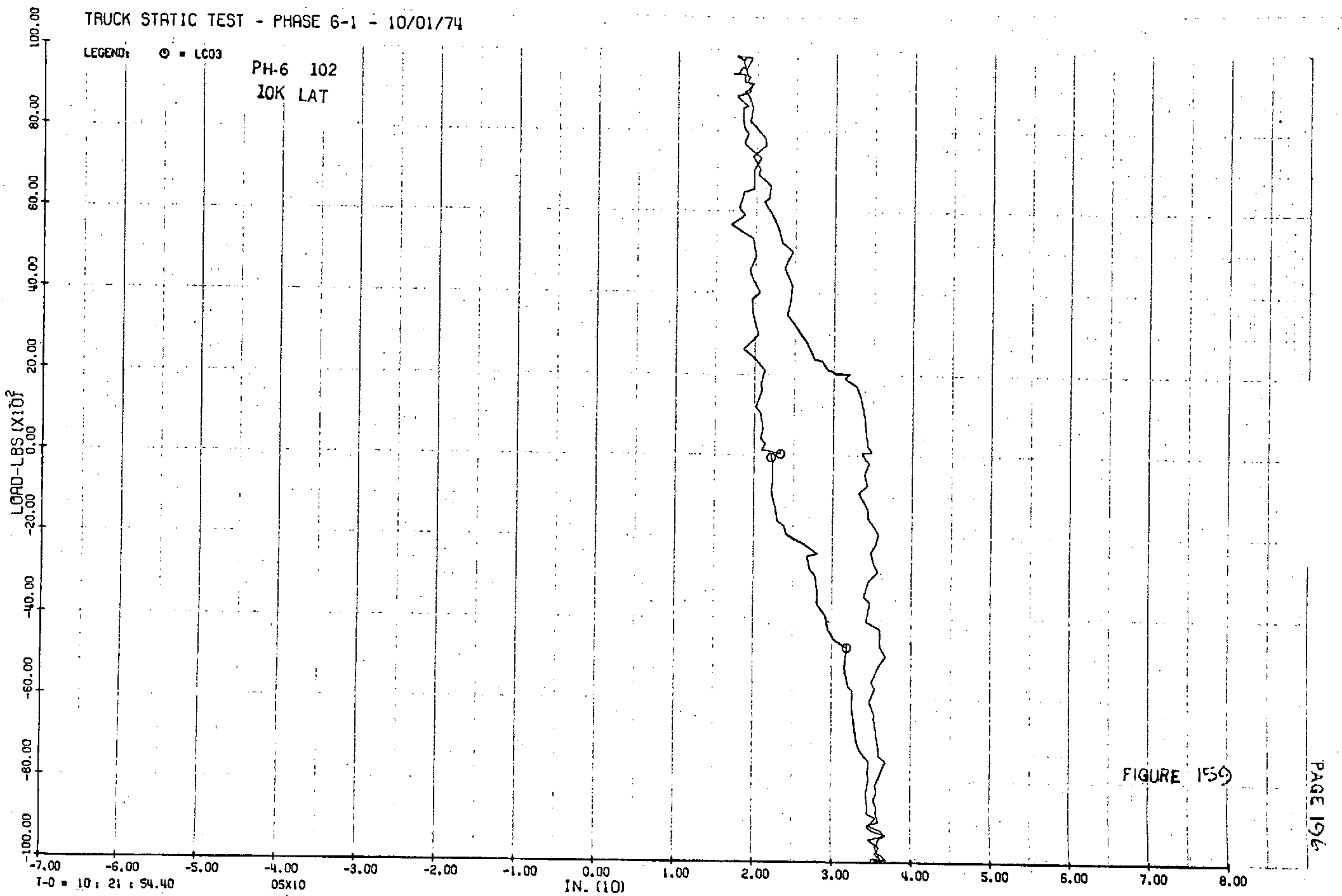
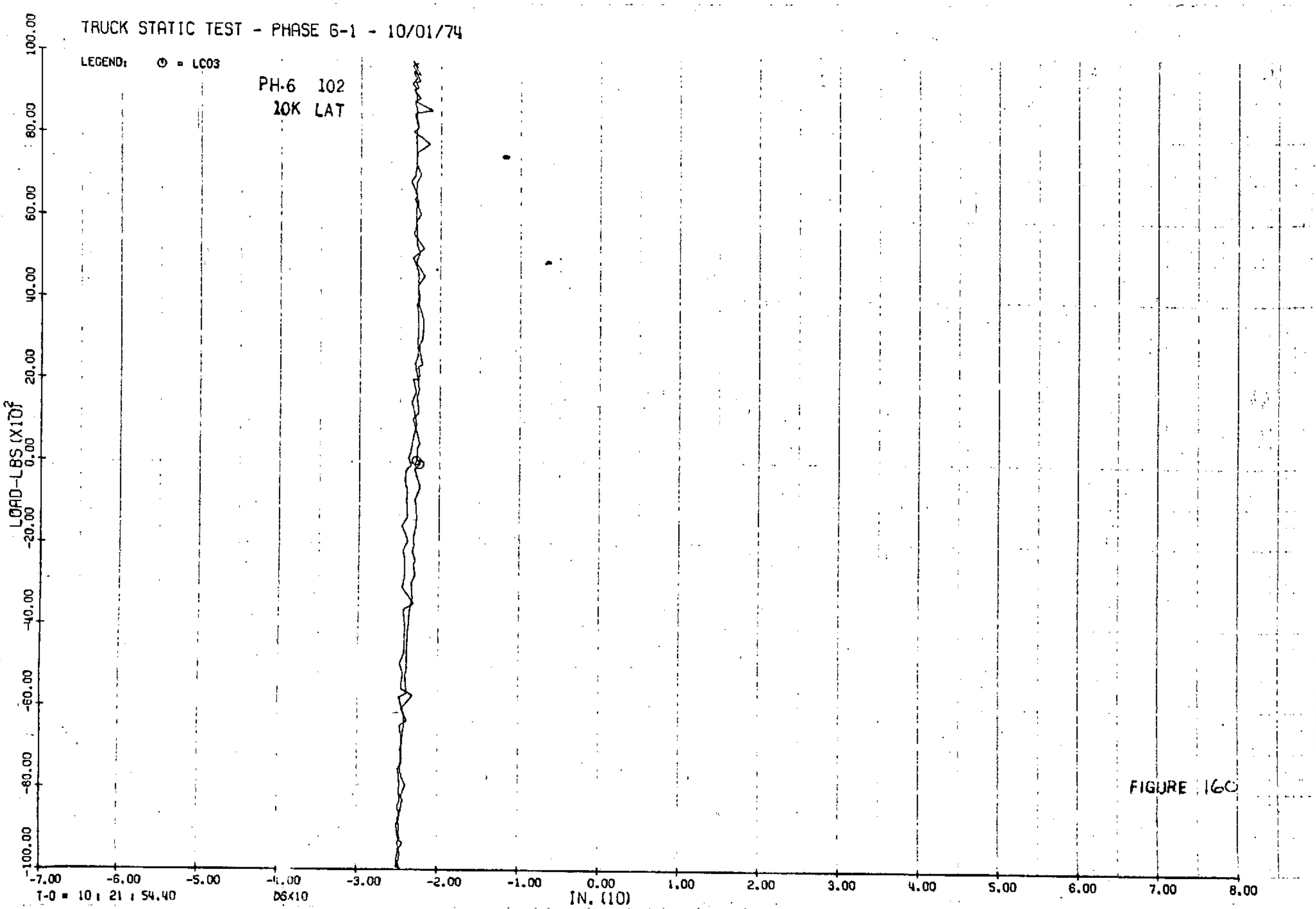

TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ① = LC03
PH-6 102
10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 10 : 21 : 54.40
04X10

FIGURE 158



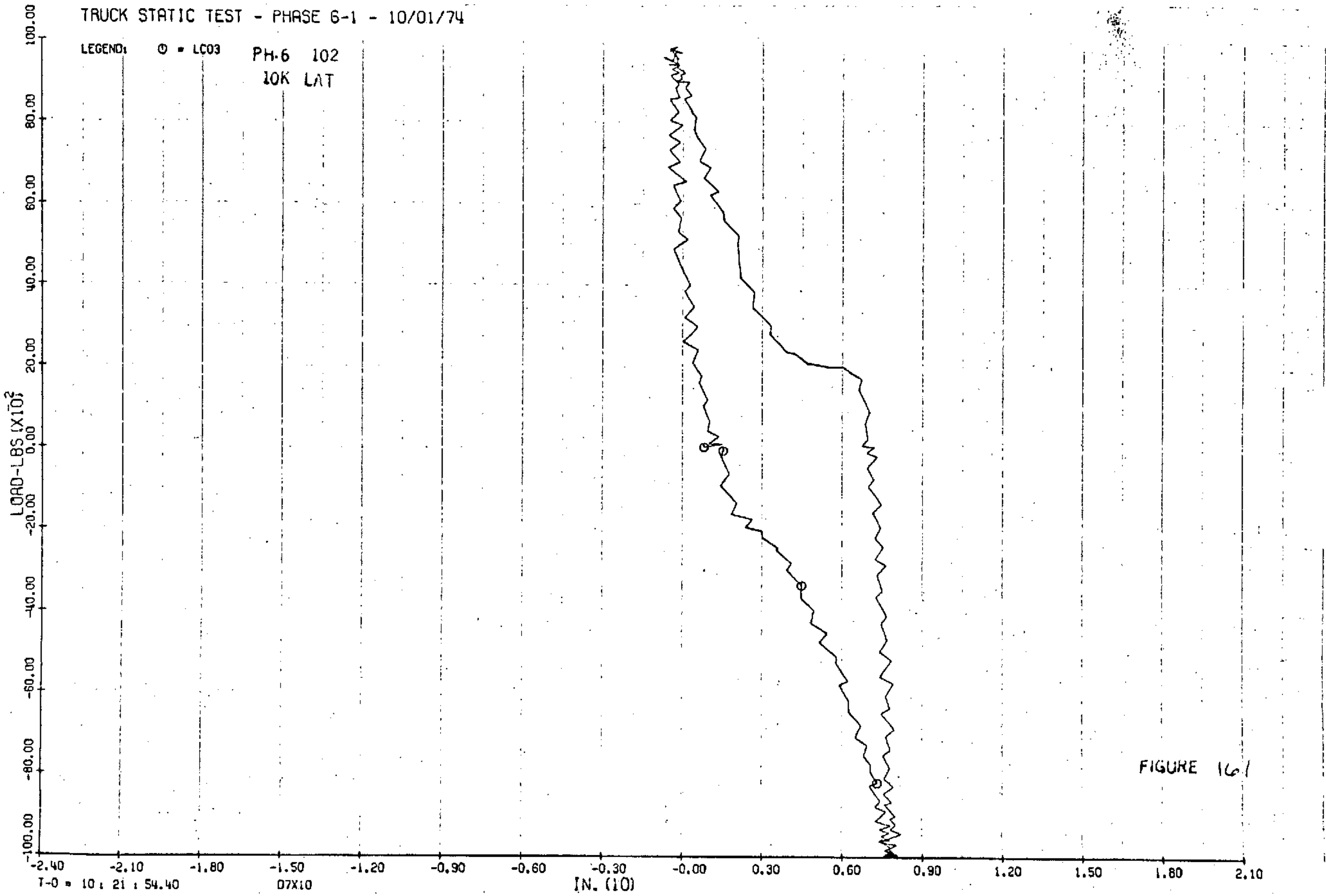
TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ⊙ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 10 : 21 : 54.40
05X10

FIGURE 159



TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ① = LC03
PH-6 102
10K LAT
LOAD-LBS (X10)²
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
T-0 = 10 : 21 : 54.40
DSX10
IN. (10)

FIGURE 160



TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ⊙ = LC03
PH.6 102
10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-2.40
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
IN. (10)
T-0 = 10 : 21 : 54.40
D7X10

FIGURE 16.1

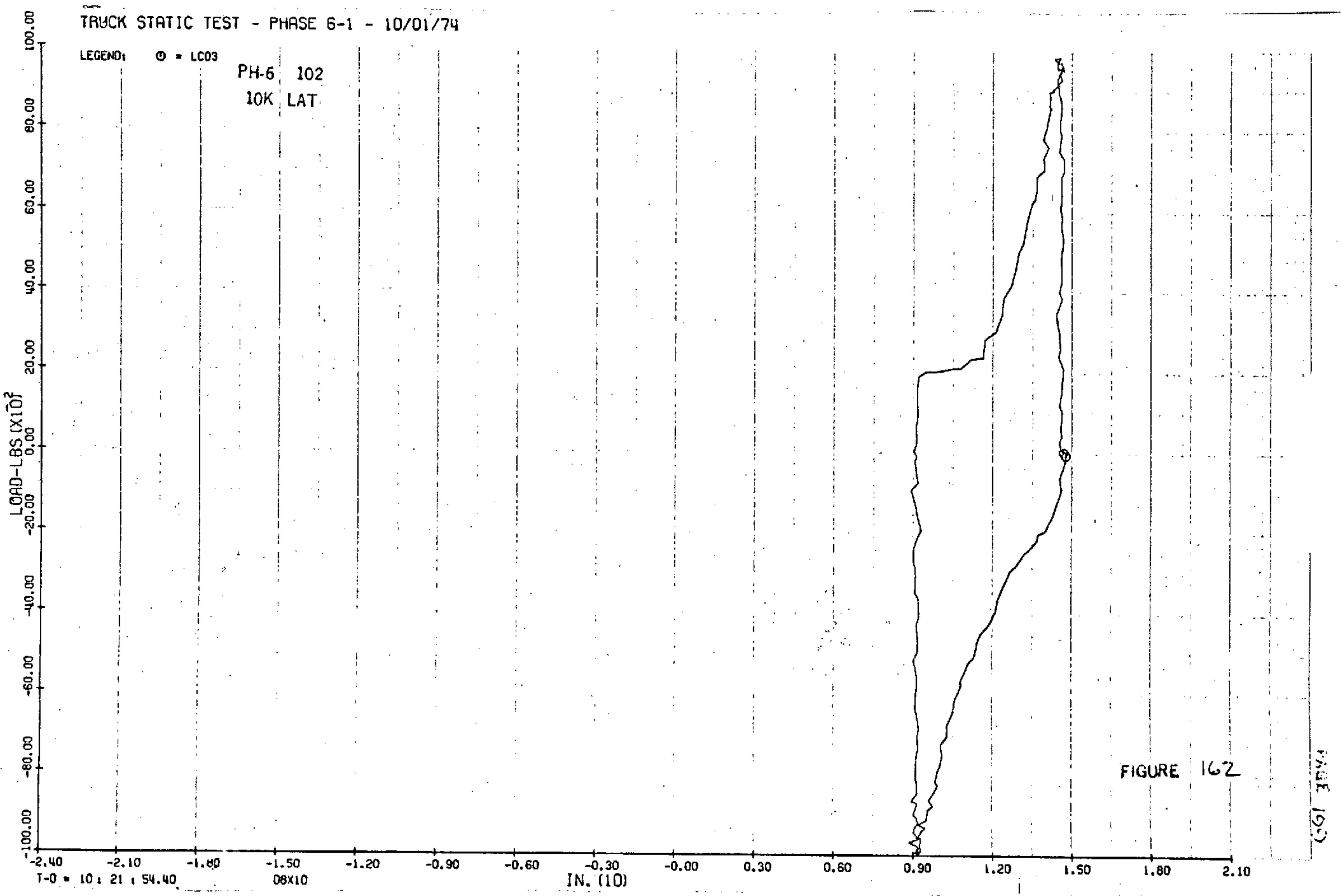

TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ⊙ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-2.40
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
T-0 = 10 : 21 : 54.40
08X10
IN. (10)

FIGURE 162

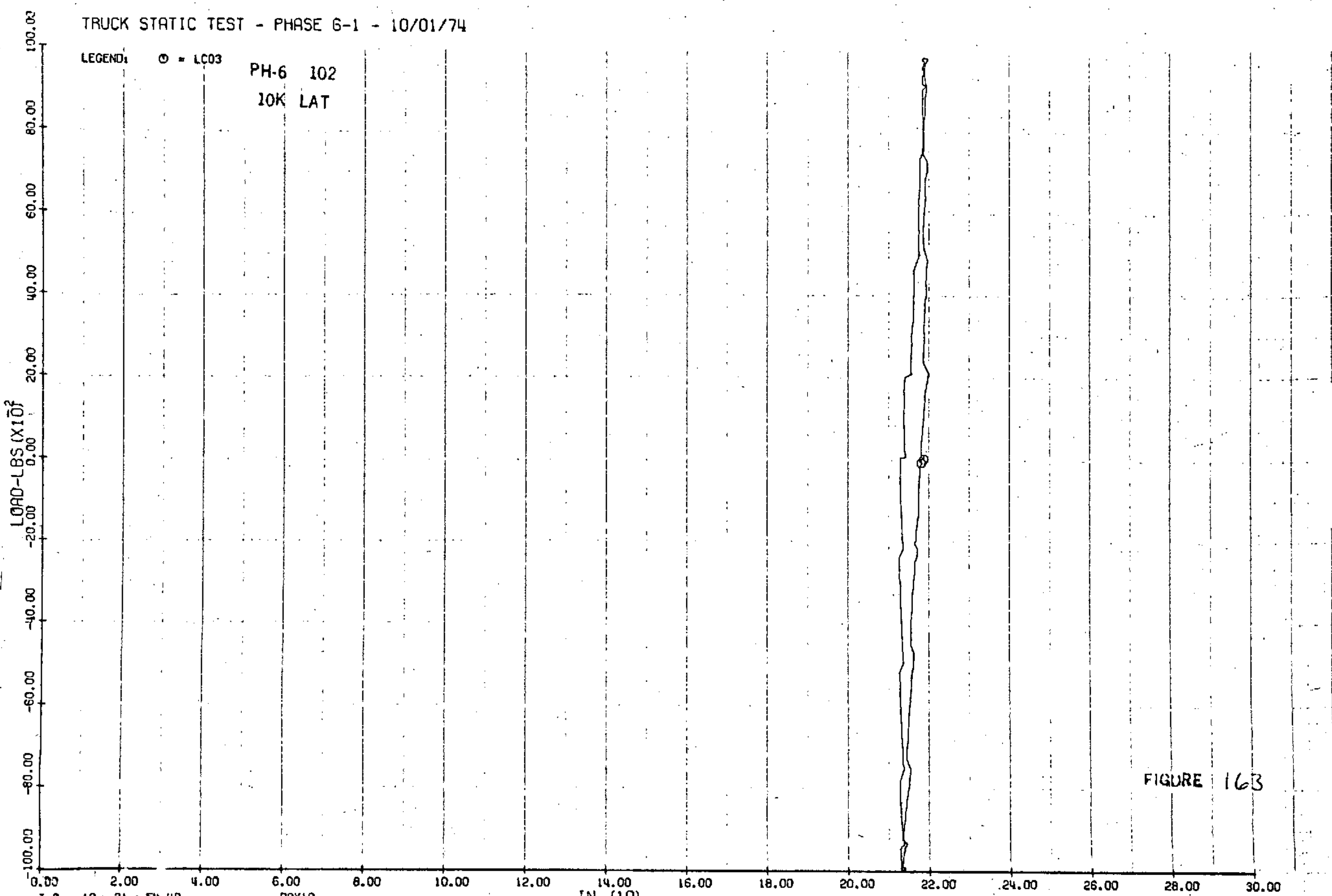


FIGURE 163

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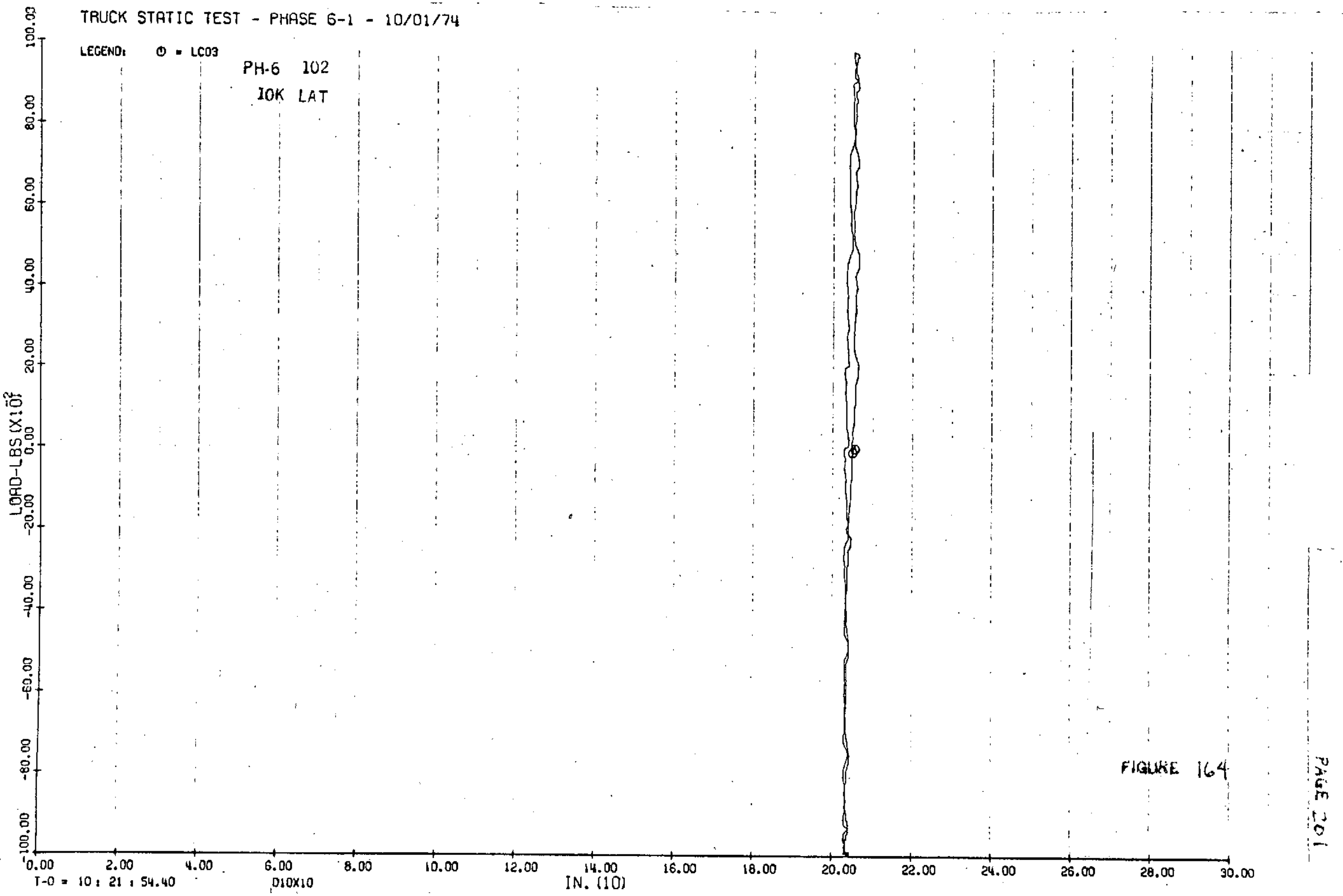
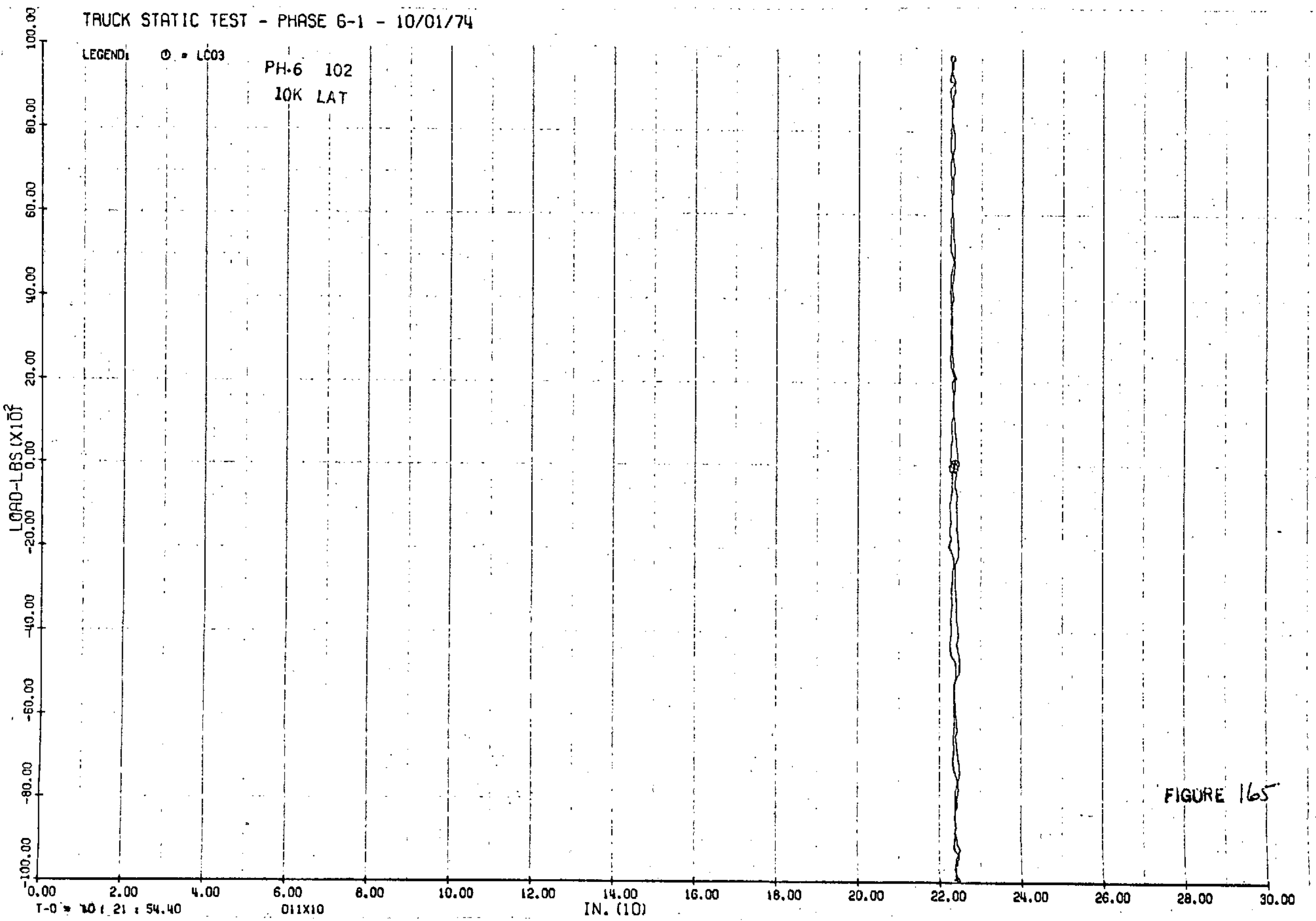


TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ① = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
T-0 = 10 : 21 : 54.40
D10X10
IN. (10)

FIGURE 164



TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ① = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 10 : 21 : 54.40
011X10

FIGURE 165

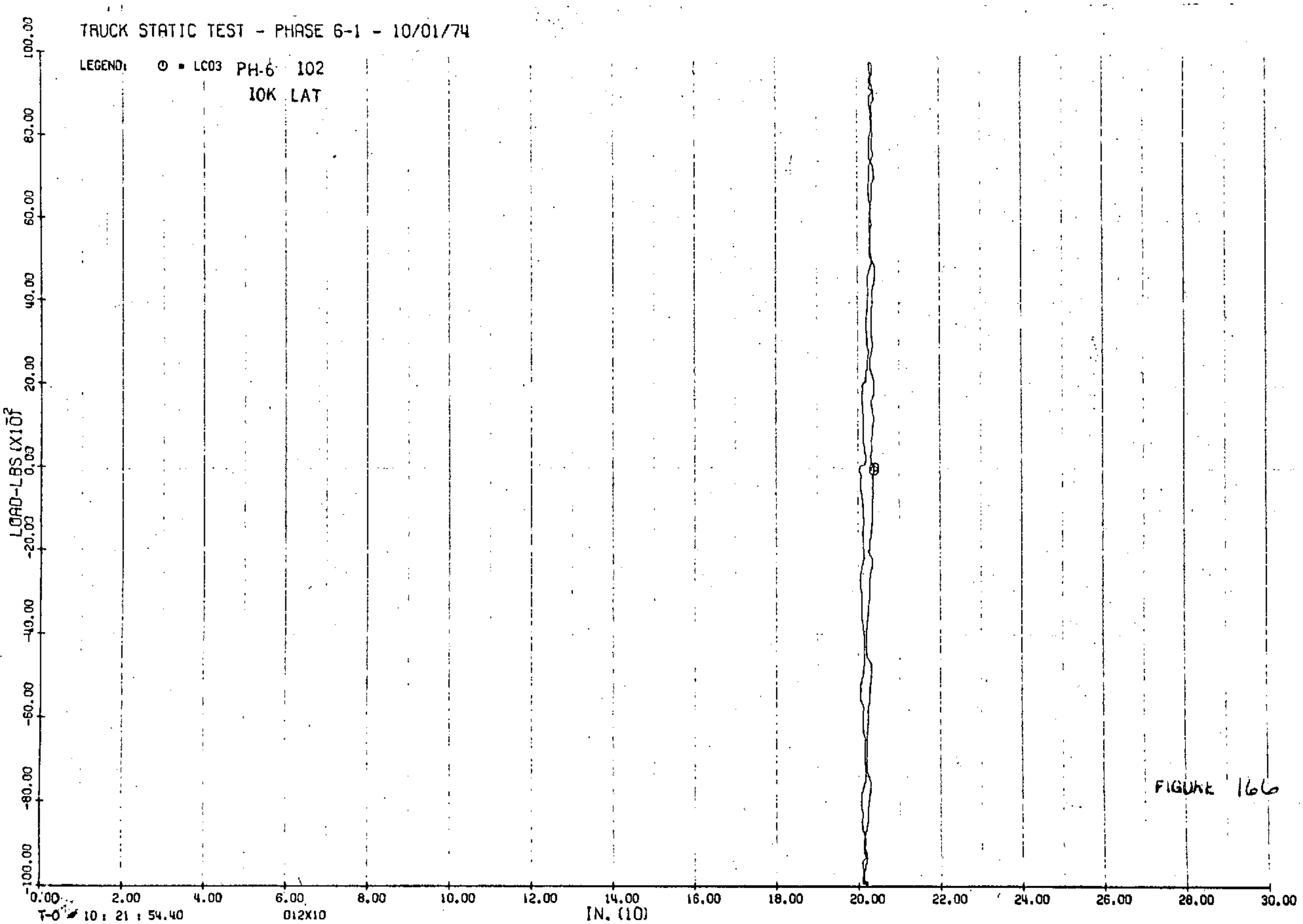

TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ① = LC03
PH-6 102
10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 10 : 21 : 54.40
012X10

FIGURE 166

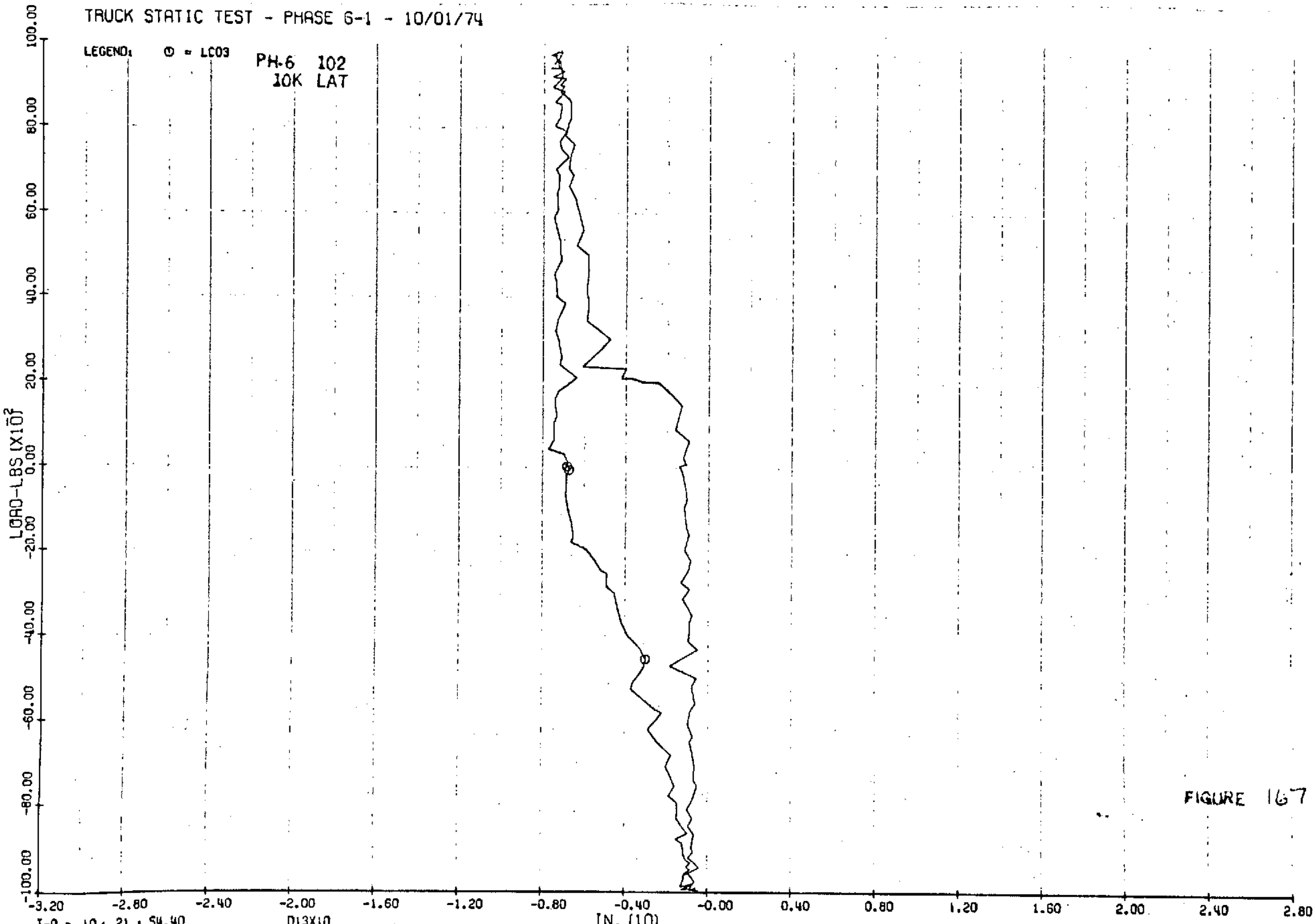


FIGURE 167

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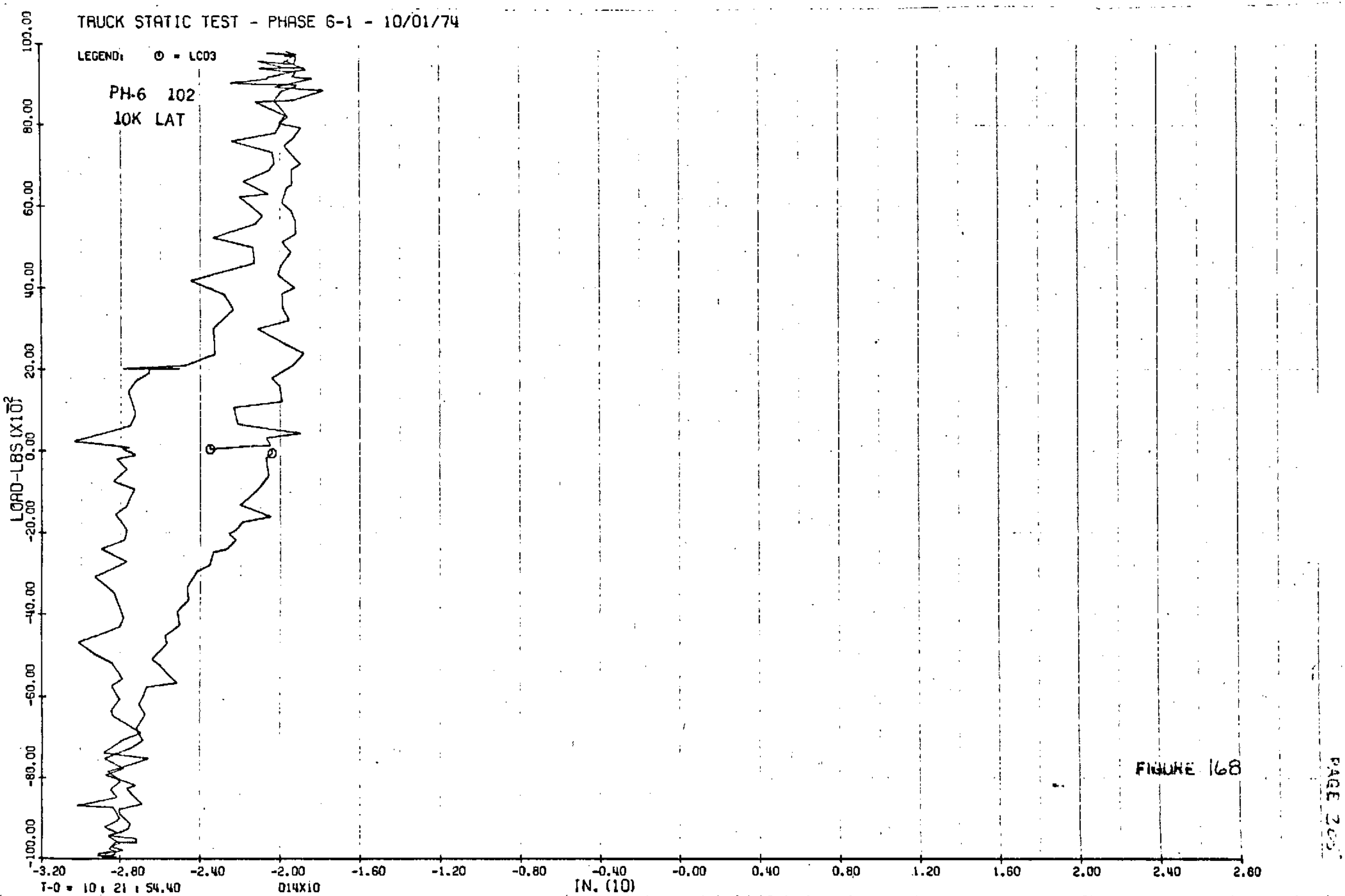

TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ⊙ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
2.40
2.80
T-0 = 10 : 21 : 54.40
014X10
IN. (10)

FIGURE 168

TRUCK STATIC TEST - PHASE G-1 - 10/01/74

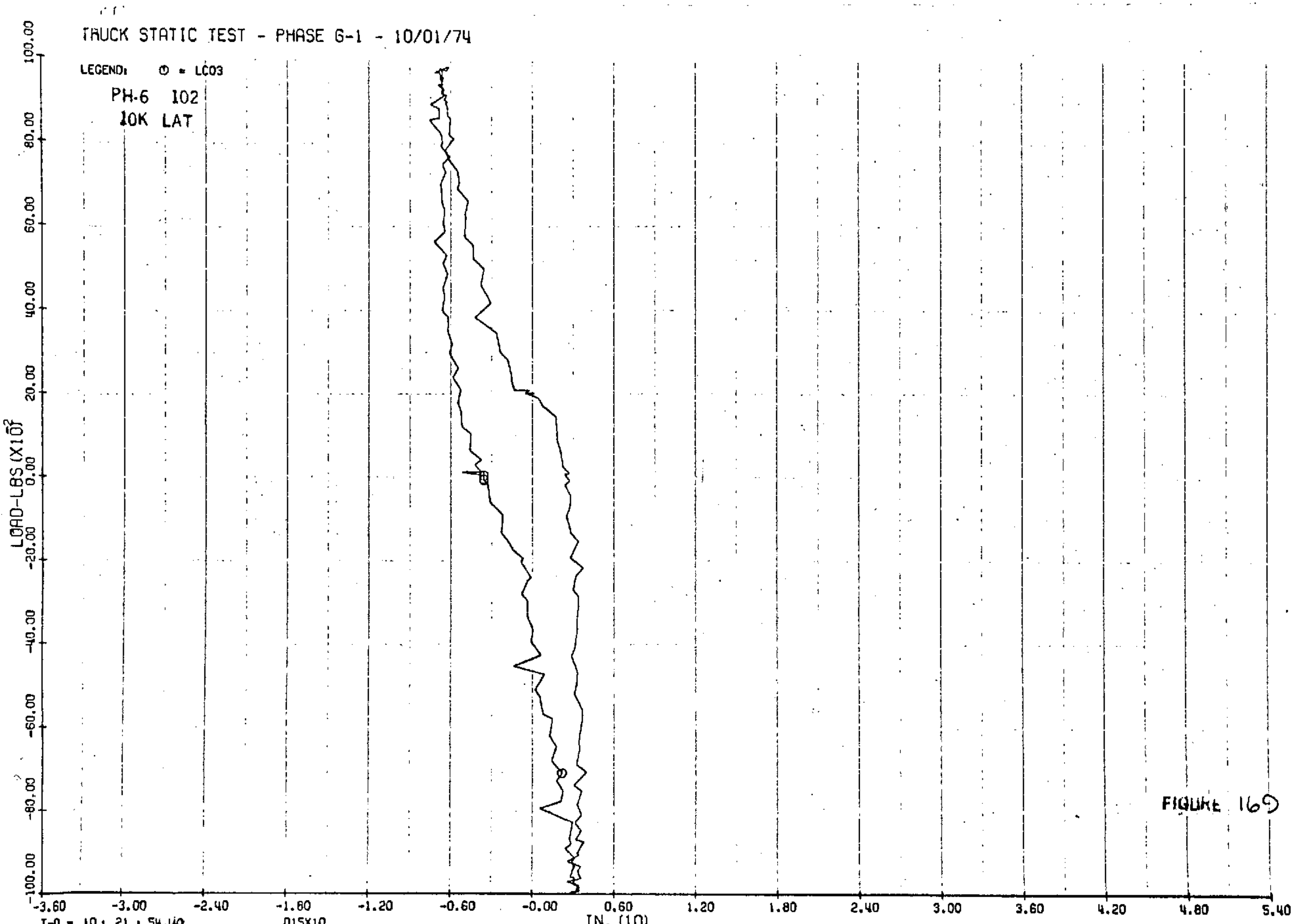


FIGURE 169

TRUCK STATIC TEST - PHASE 6-1 - 10/01/74

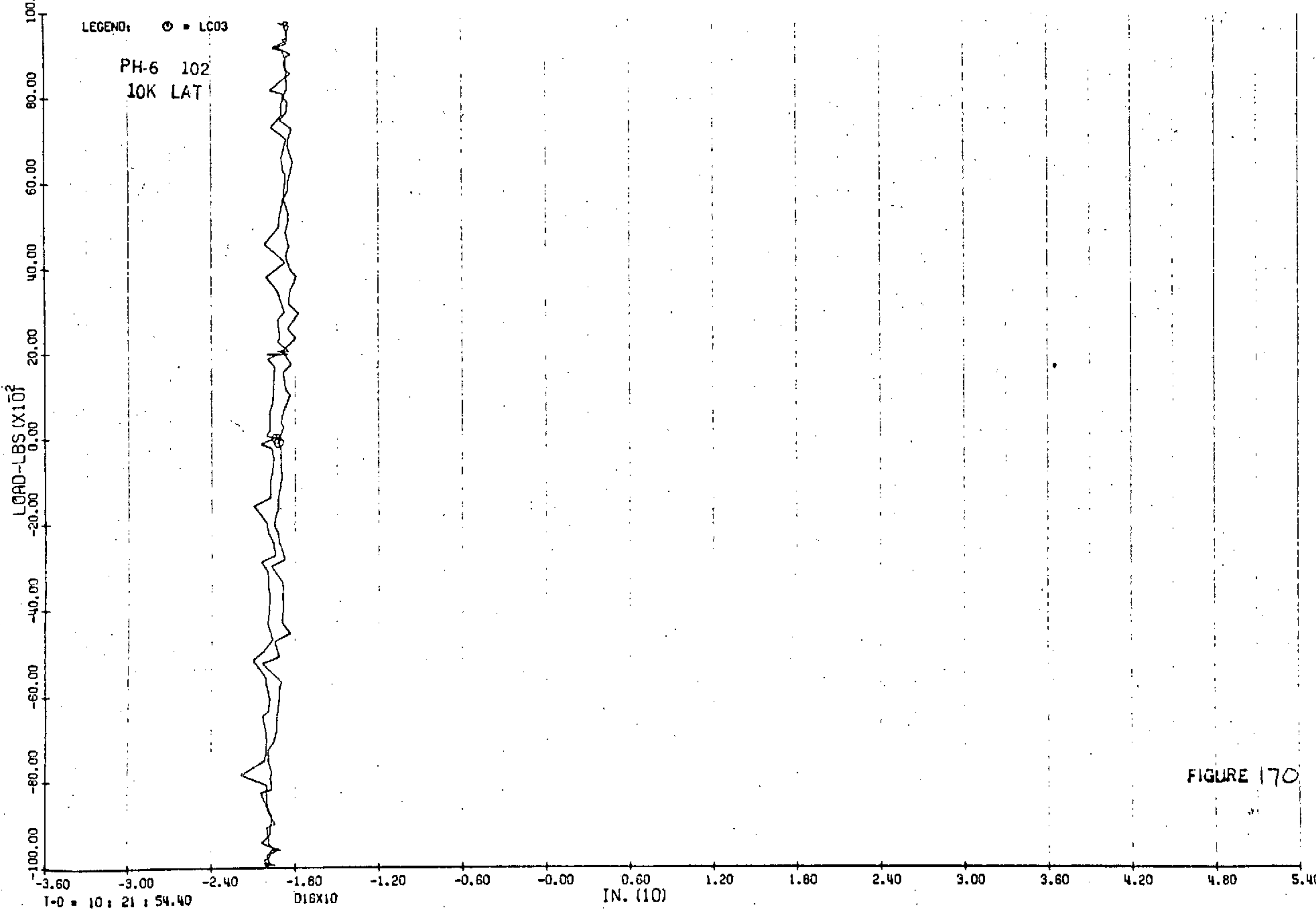


FIGURE 170

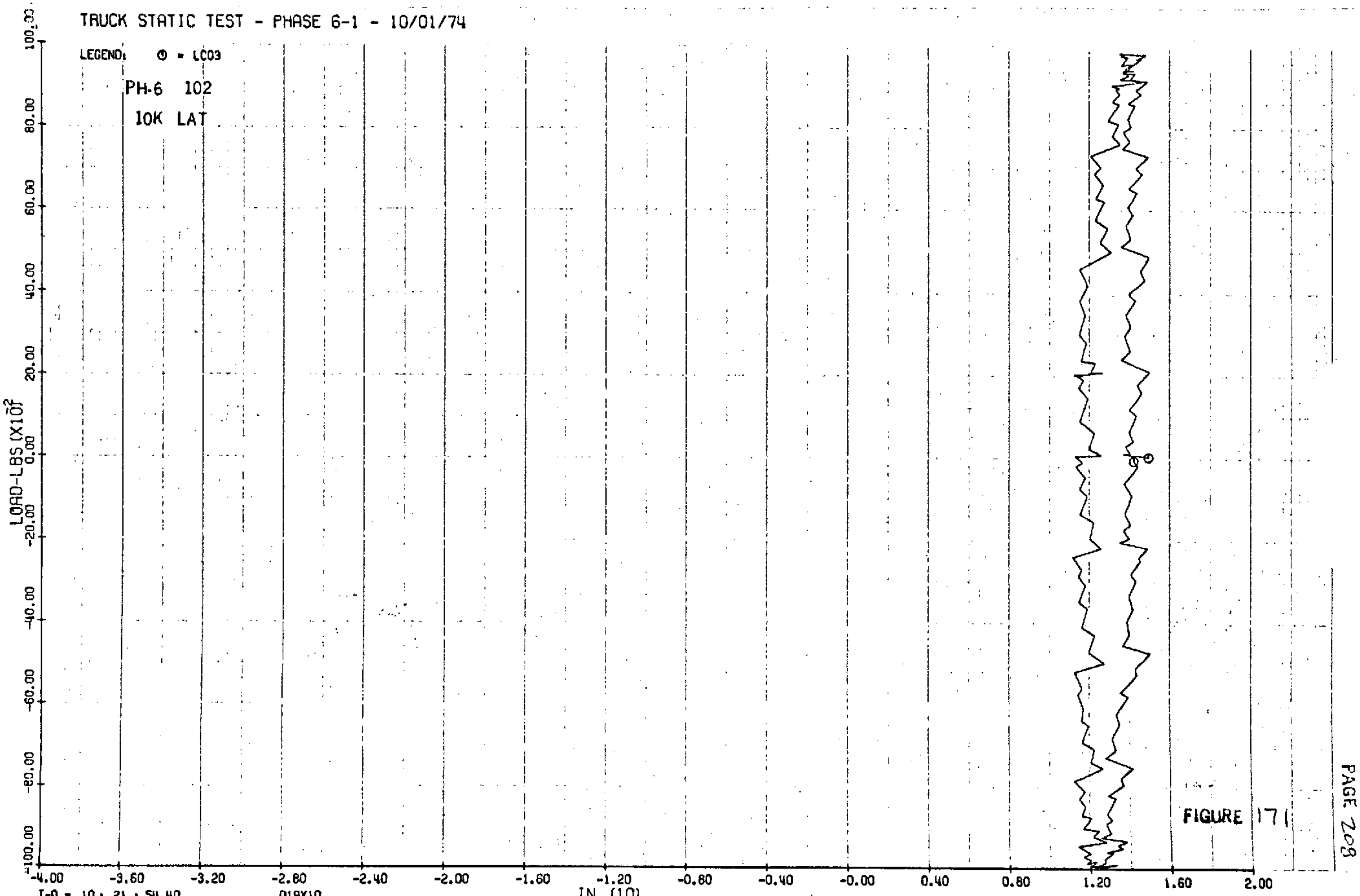
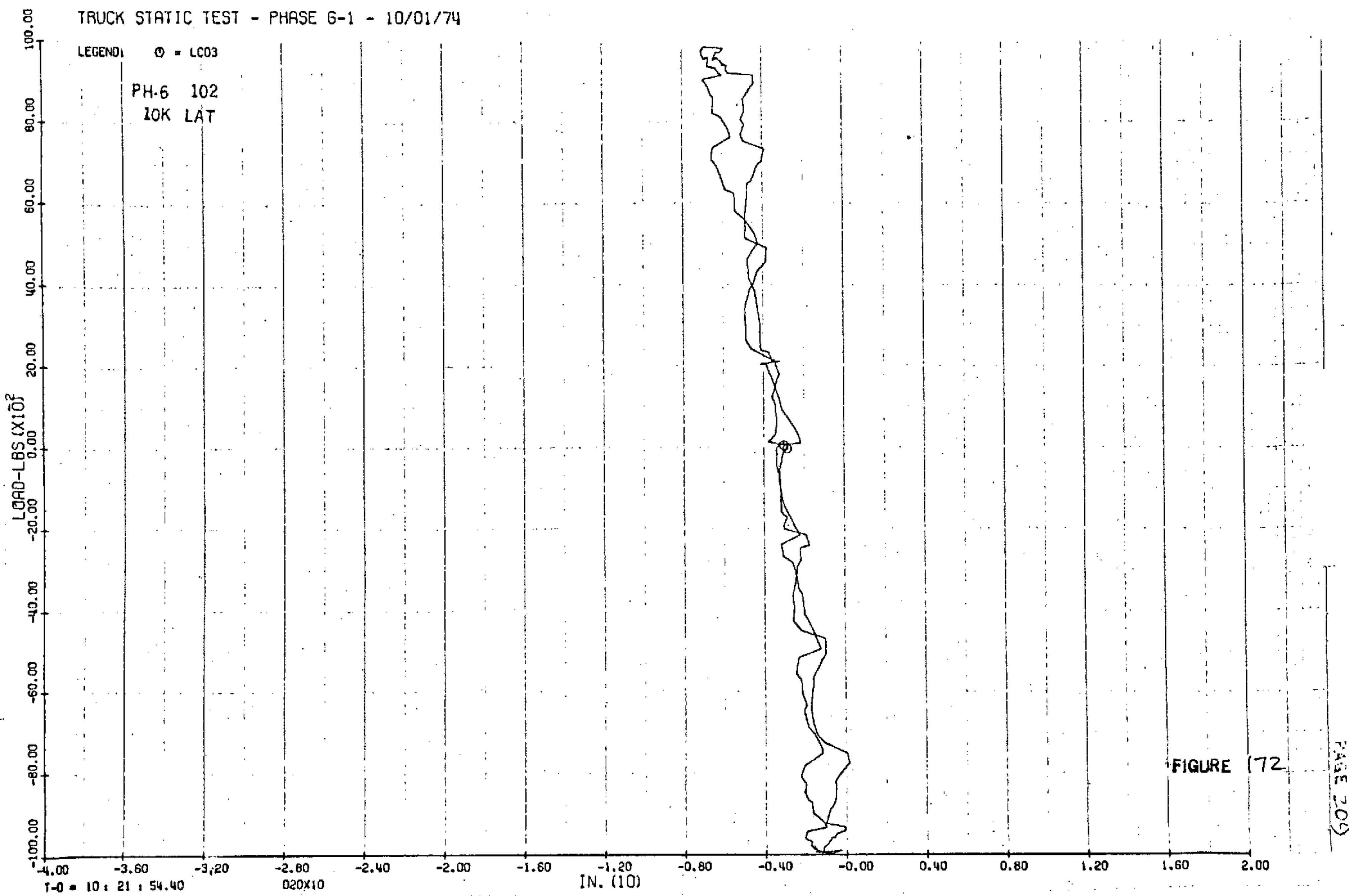
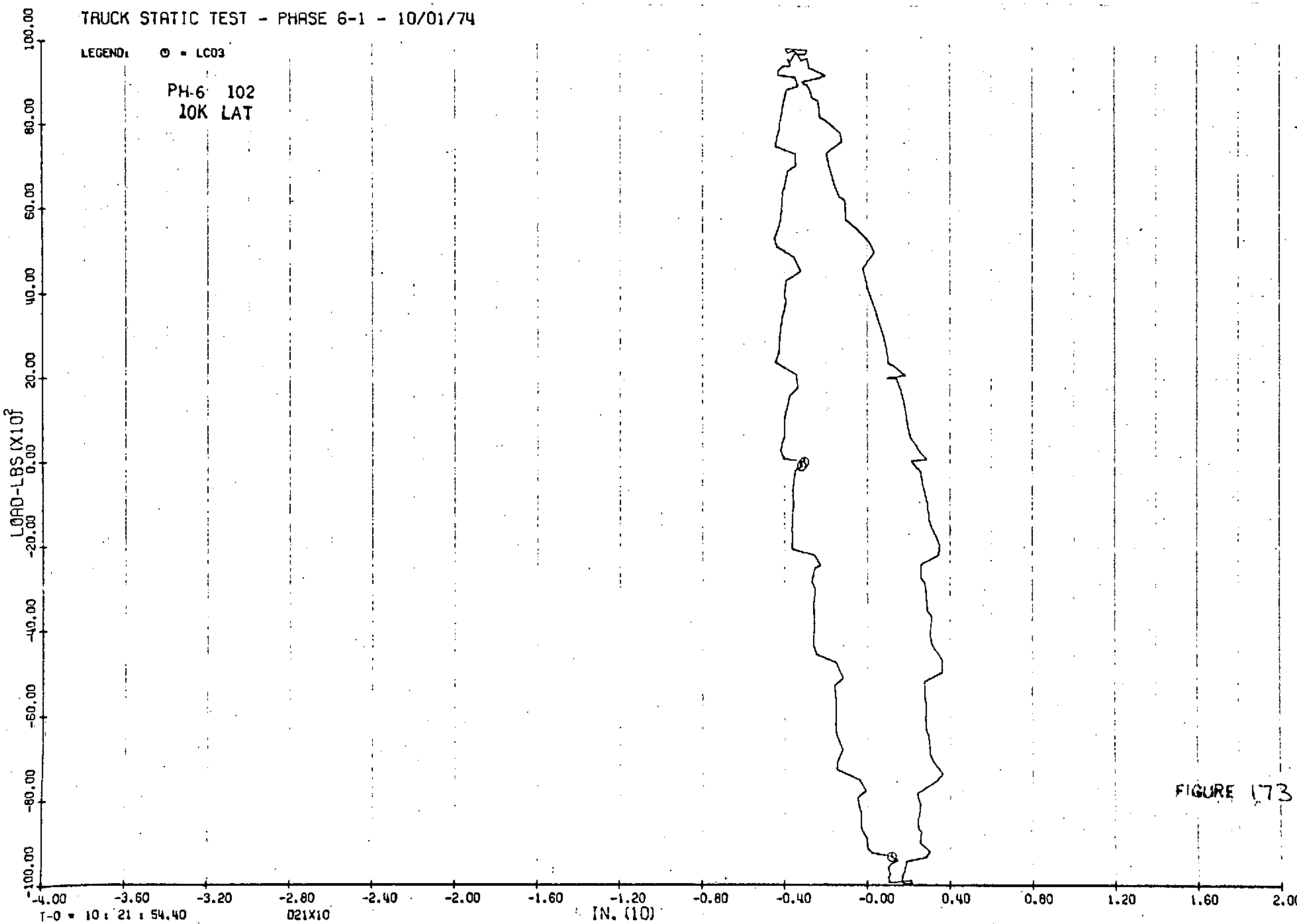

TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ⊙ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
IN. (10)
T-0 = 10 : 21 : 54.40
019X10

FIGURE 171



TRUCK STATIC TEST - PHASE G-1 - 10/01/74
LEGEND: ⊙ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
IN. (10)
T-0 = 10 : 21 : 54.40
020X10

FIGURE 172



TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ⊙ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
T-0 = 10 : 21 : 54.40
021X10
IN. (10)

FIGURE 173

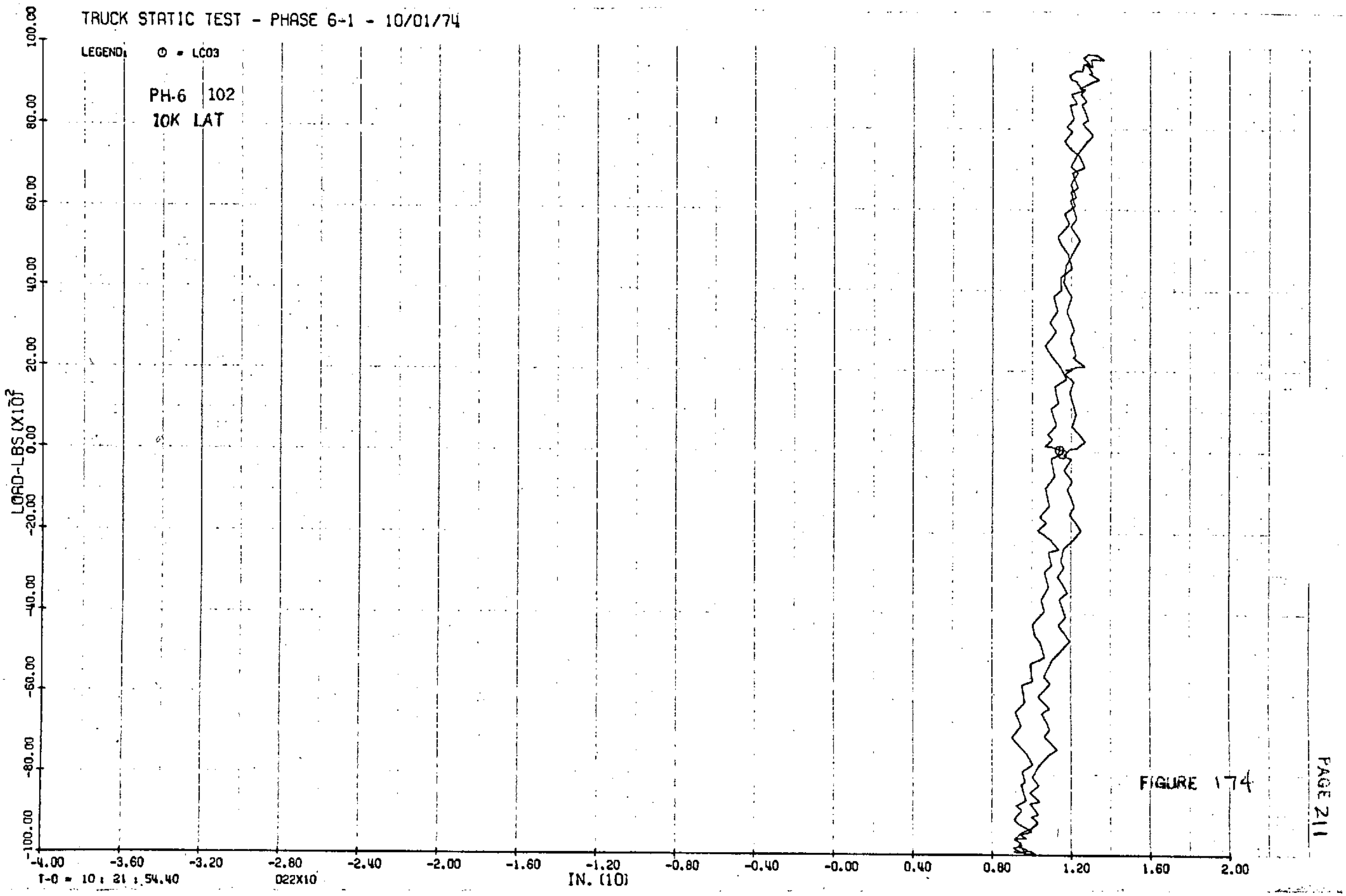
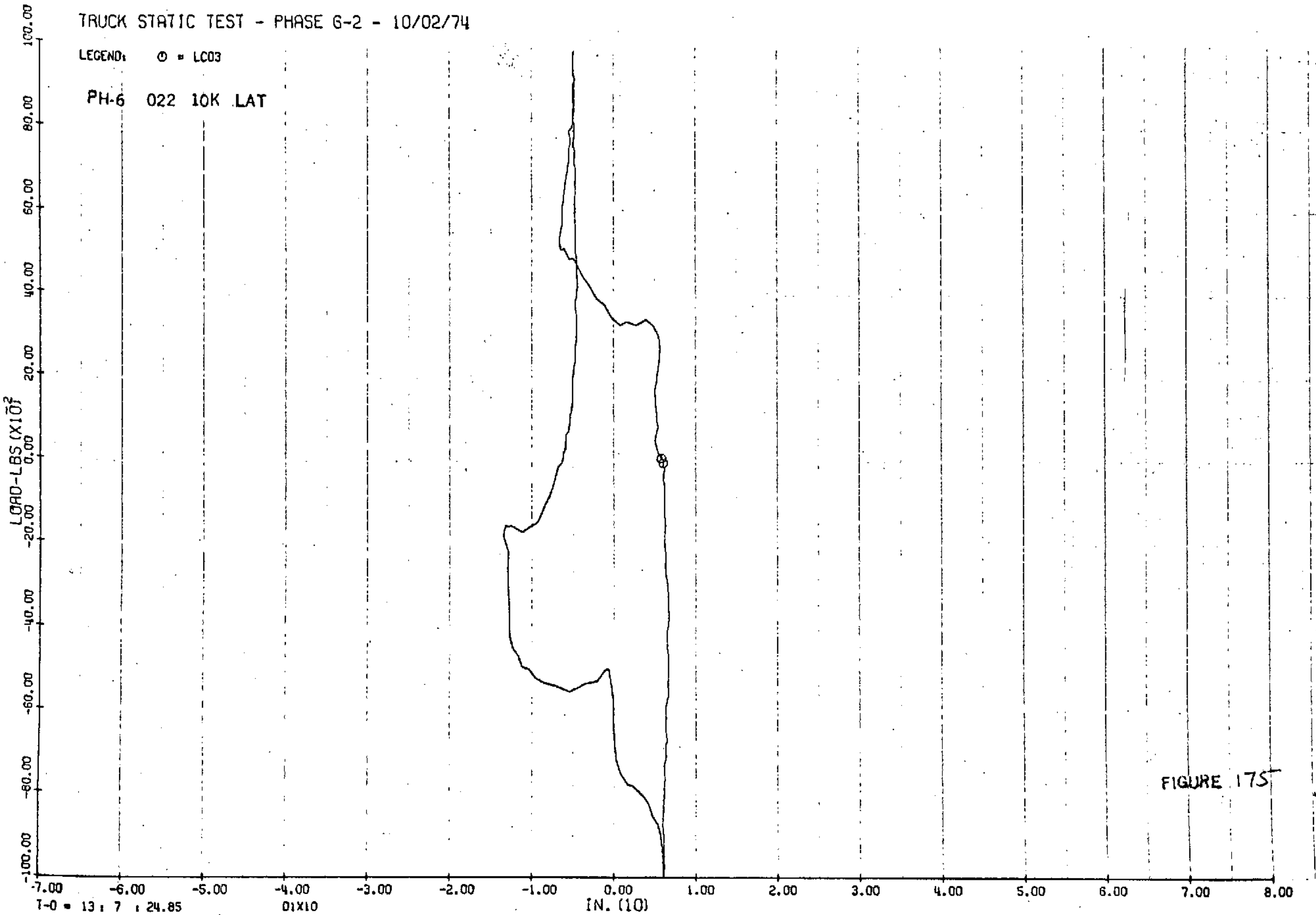

TRUCK STATIC TEST - PHASE 6-1 - 10/01/74
LEGEND: ⊕ = LC03
PH-6 102
10K LAT
LOAD-LBS (X10²)
IN. (10)
T-0 = 10 : 21 : 54.40
022X10
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00

FIGURE 174



TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 13 : 7 : 24.85
01X10

FIGURE 175

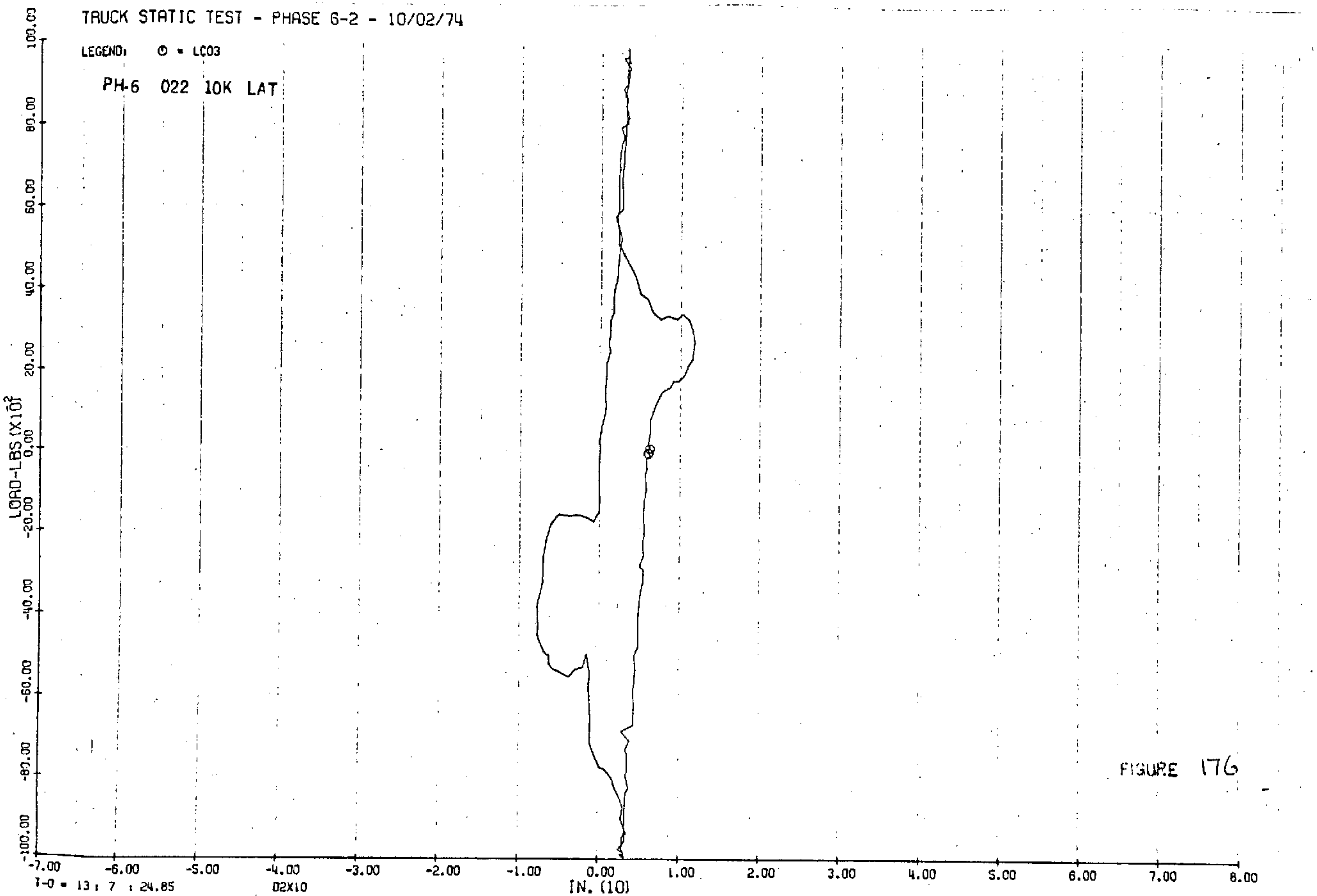
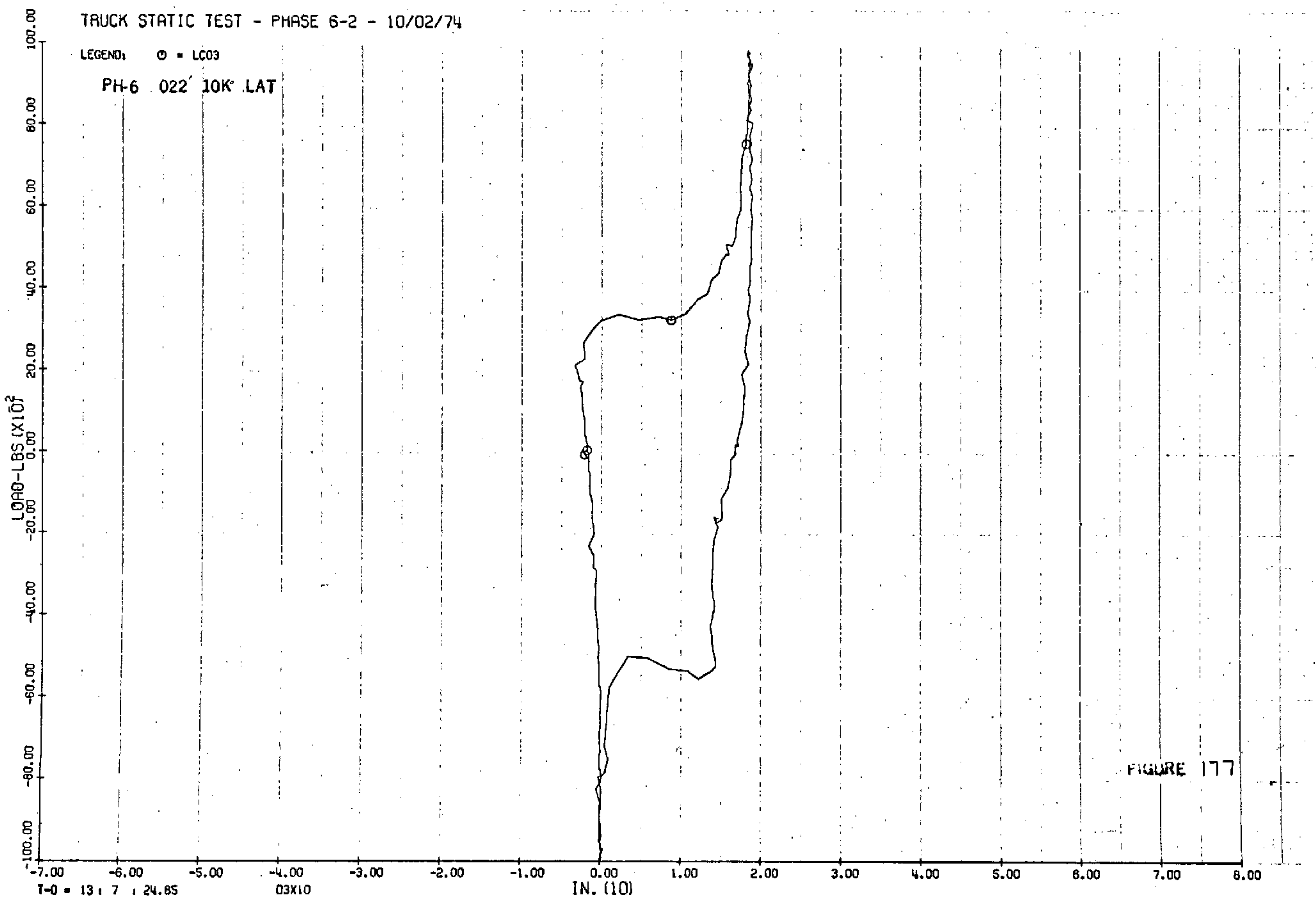
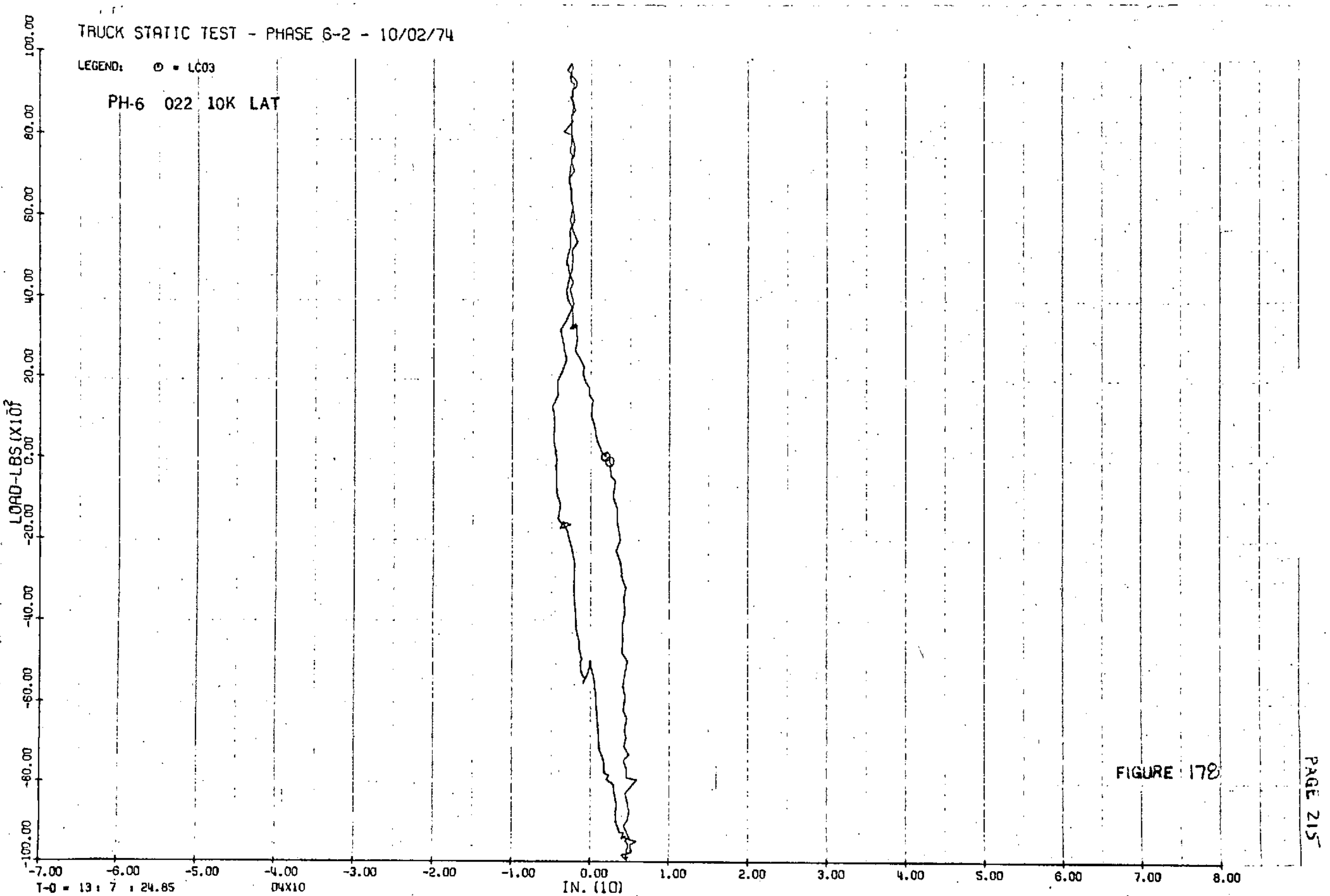

TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 13 : 7 : 24.85
02X10

FIGURE 176



TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022' 10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 13 : 7 : 24.85
03X10

FIGURE 177


TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊕ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 13 : 7 : 24.85
D4X10
FIGURE 178

TRUCK STATIC TEST - PHASE 6-2 - 10/02/74

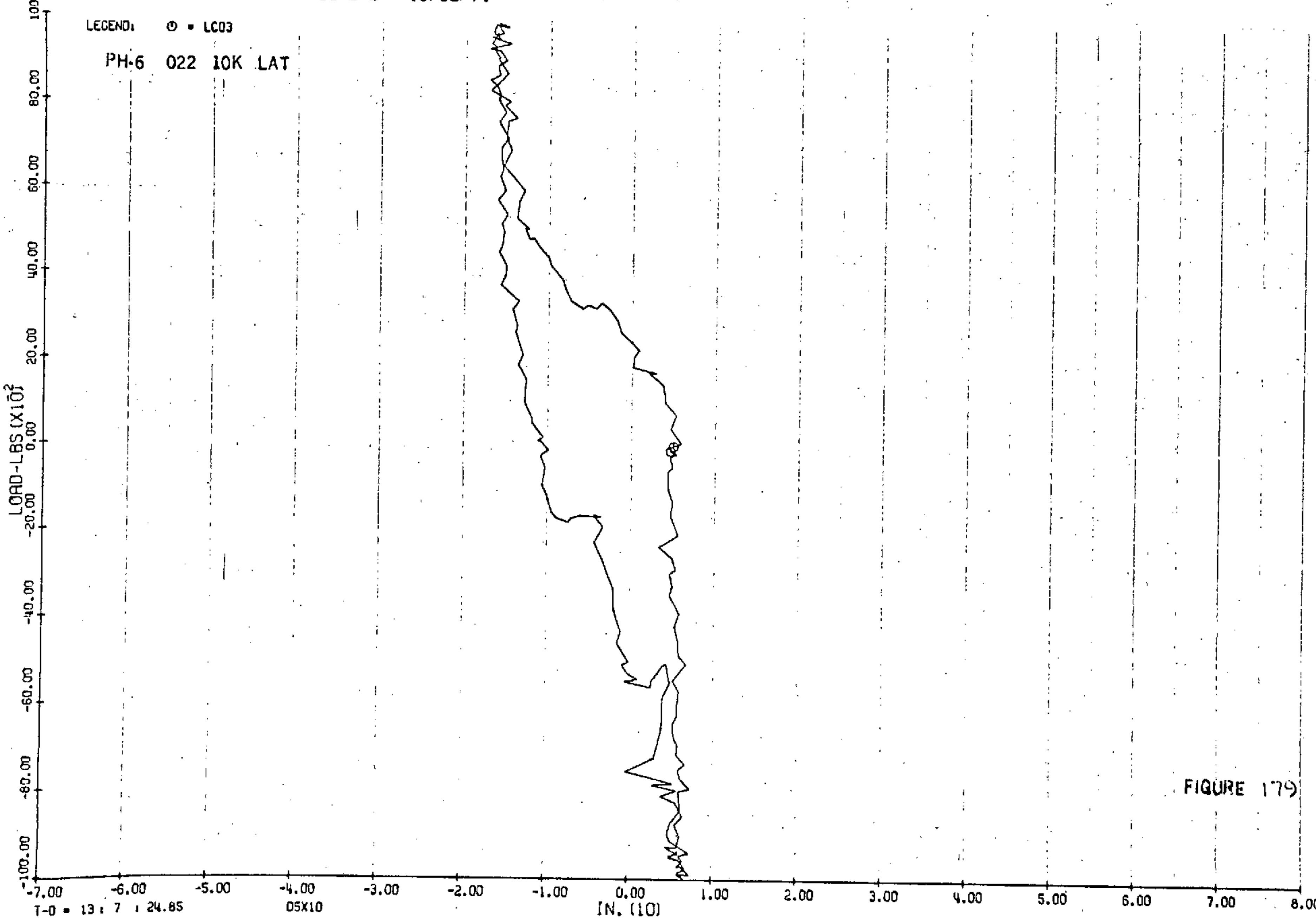
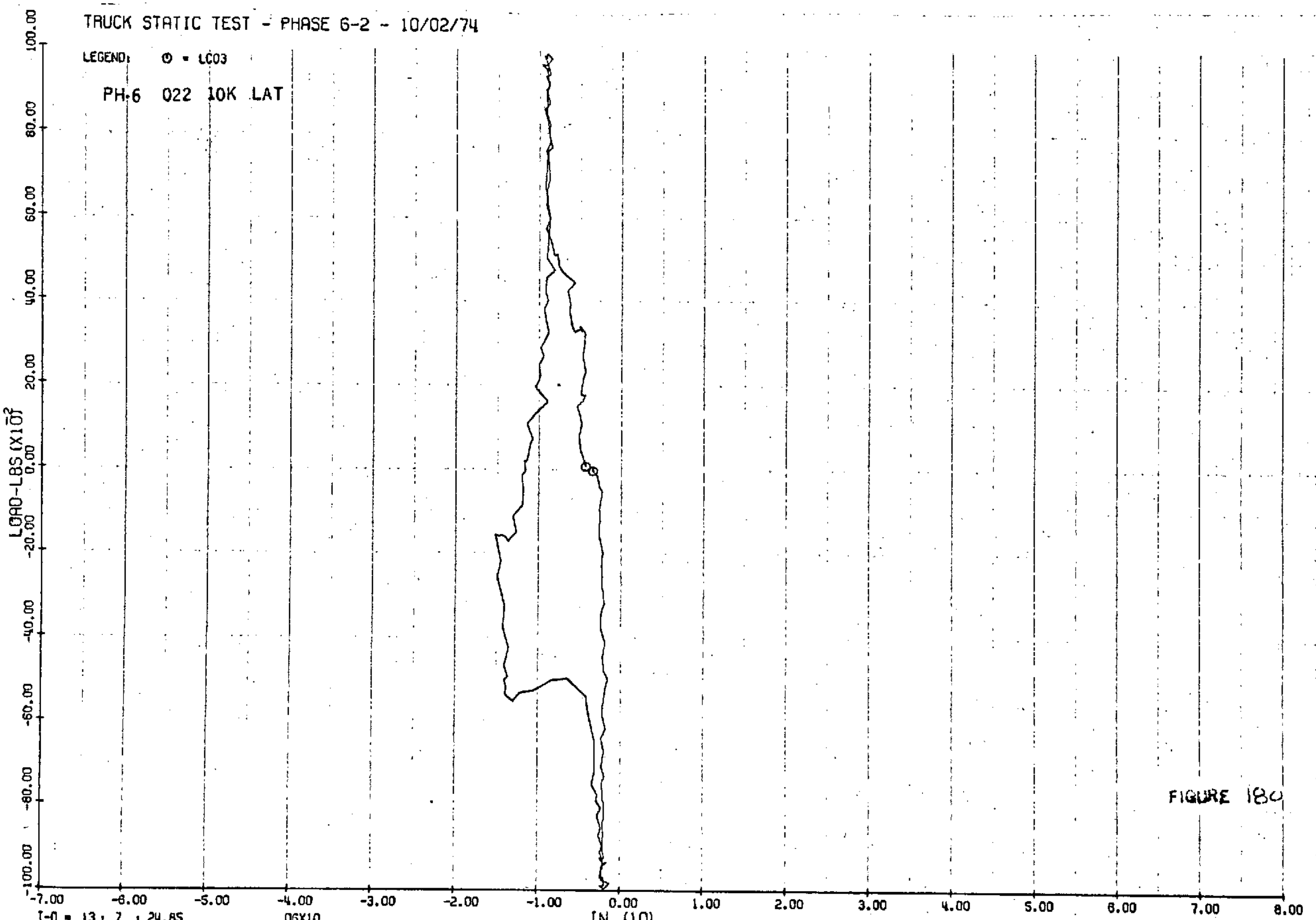


FIGURE 179



TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10²)
IN. (10)
T-0 = 13 : 7 : 24.85
0GX10

FIGURE 180

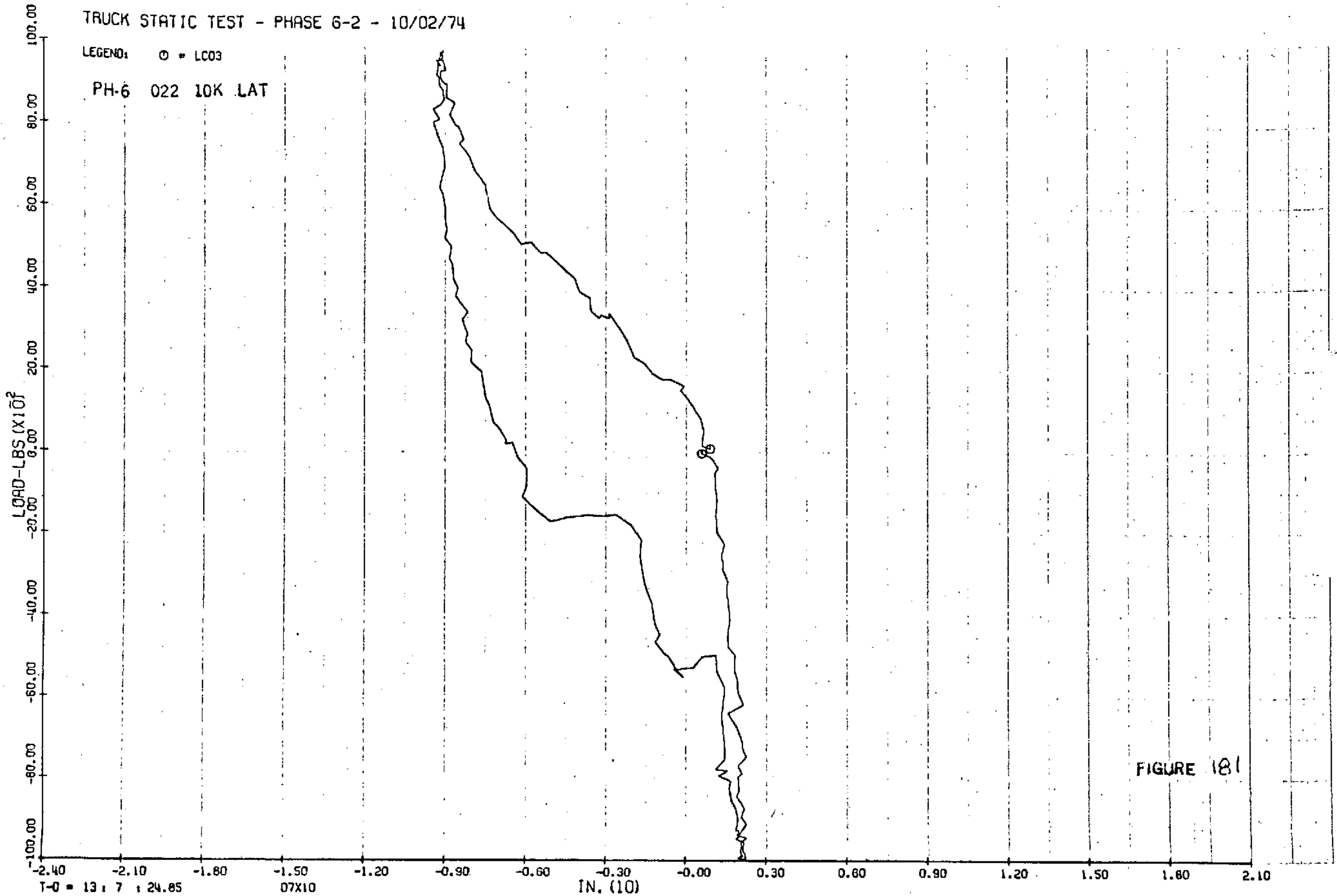

TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-2.40
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
T-0 = 13 : 7 : 24.85
07X10
IN. (10)

FIGURE 181

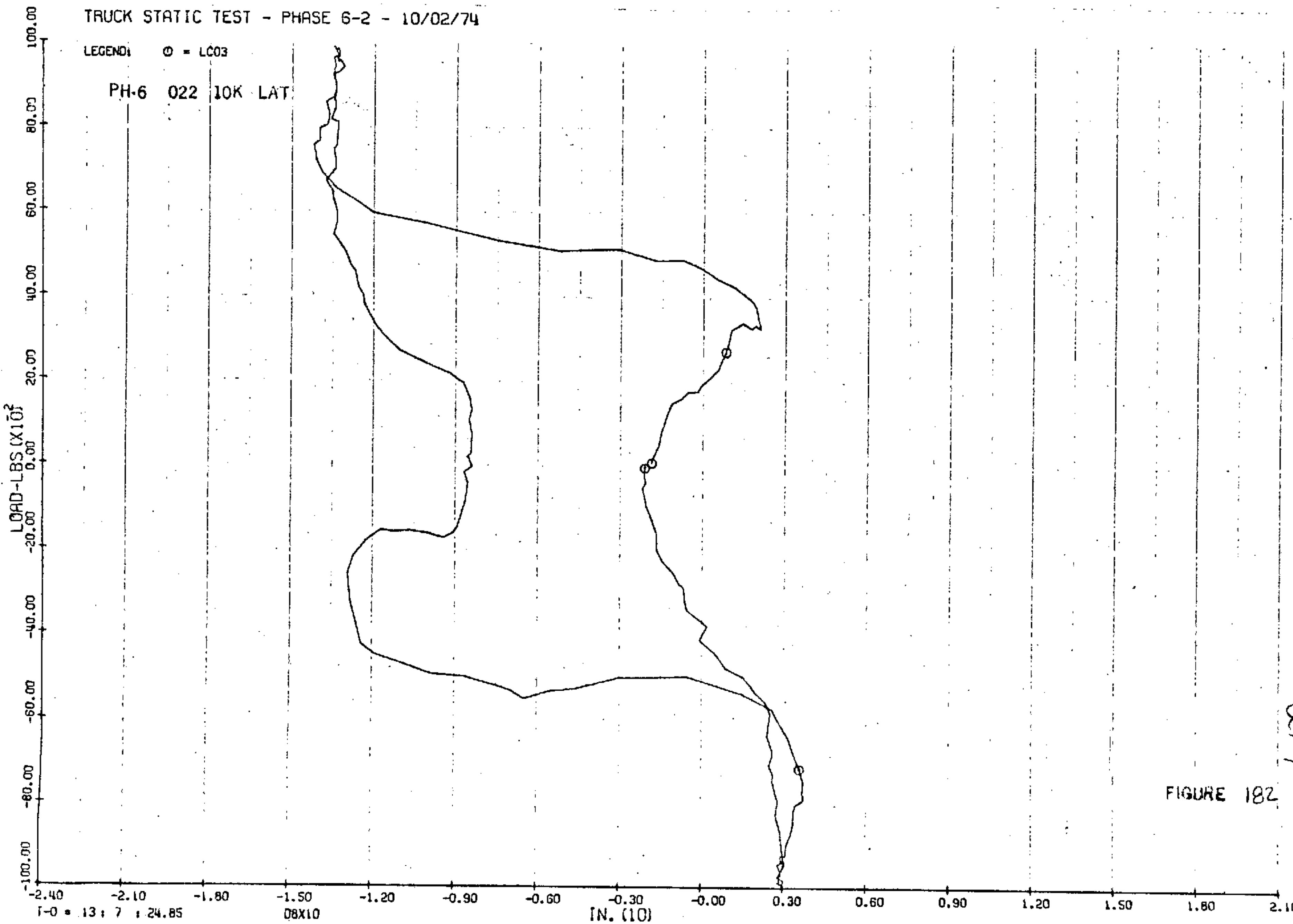
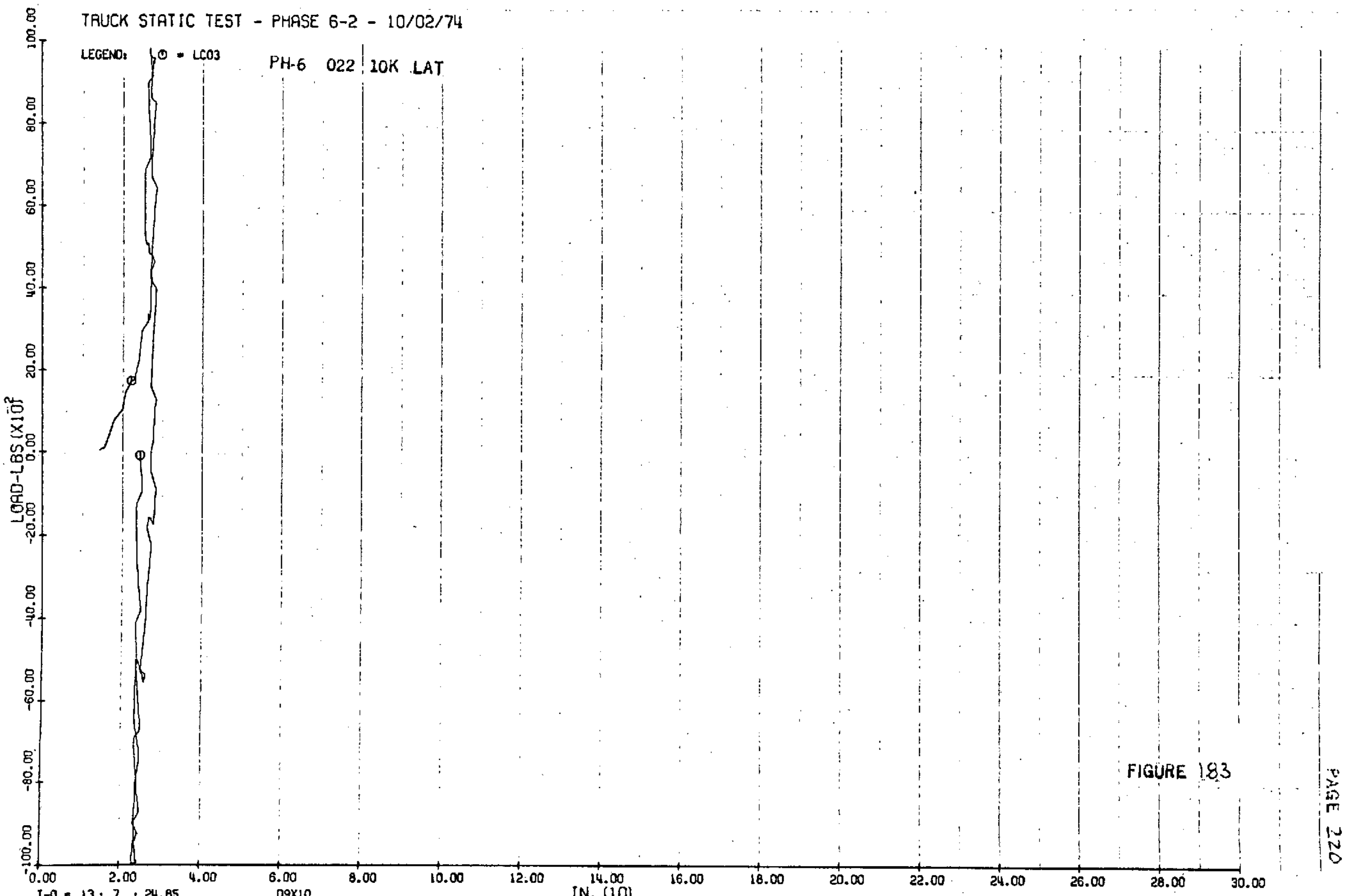
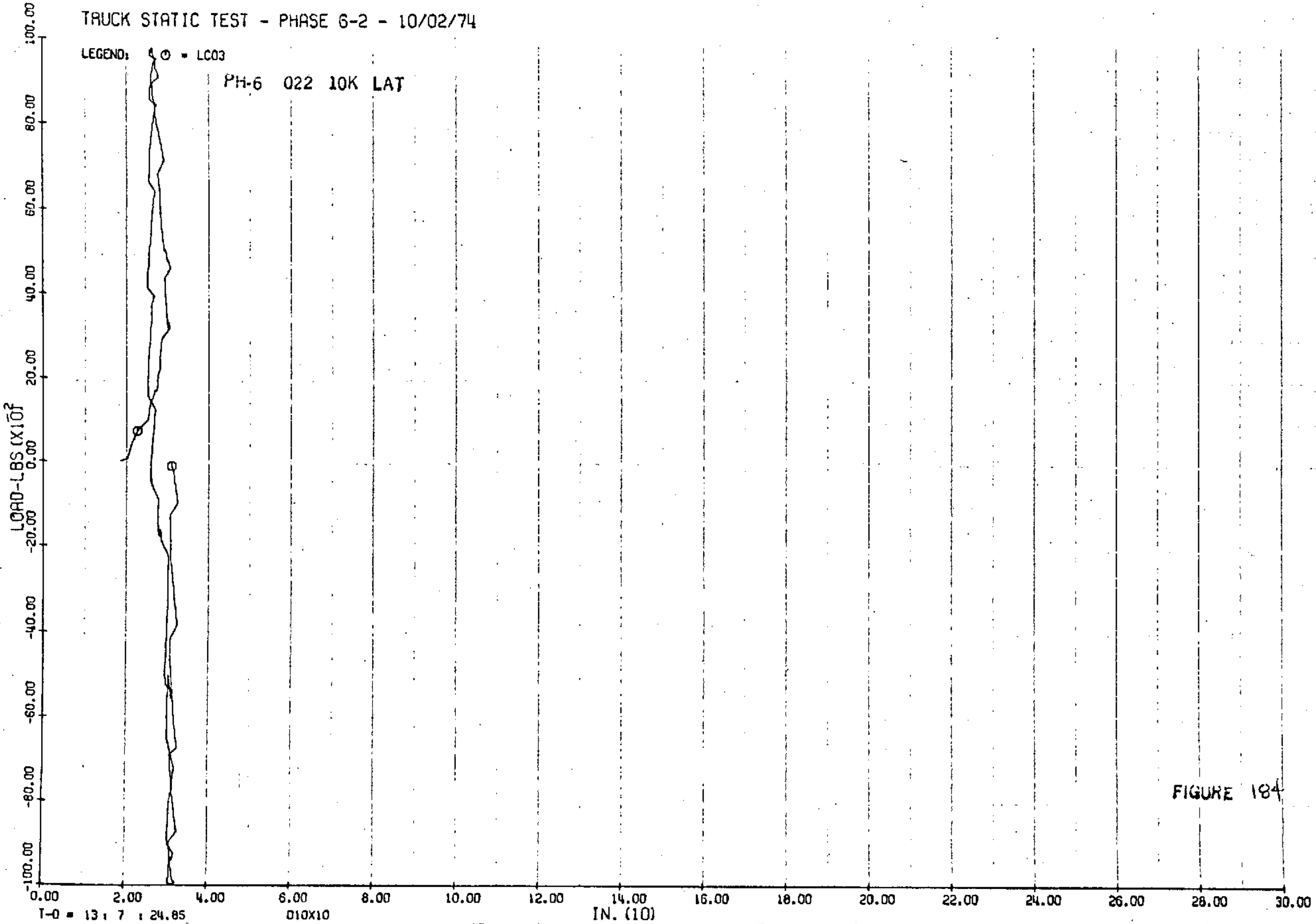
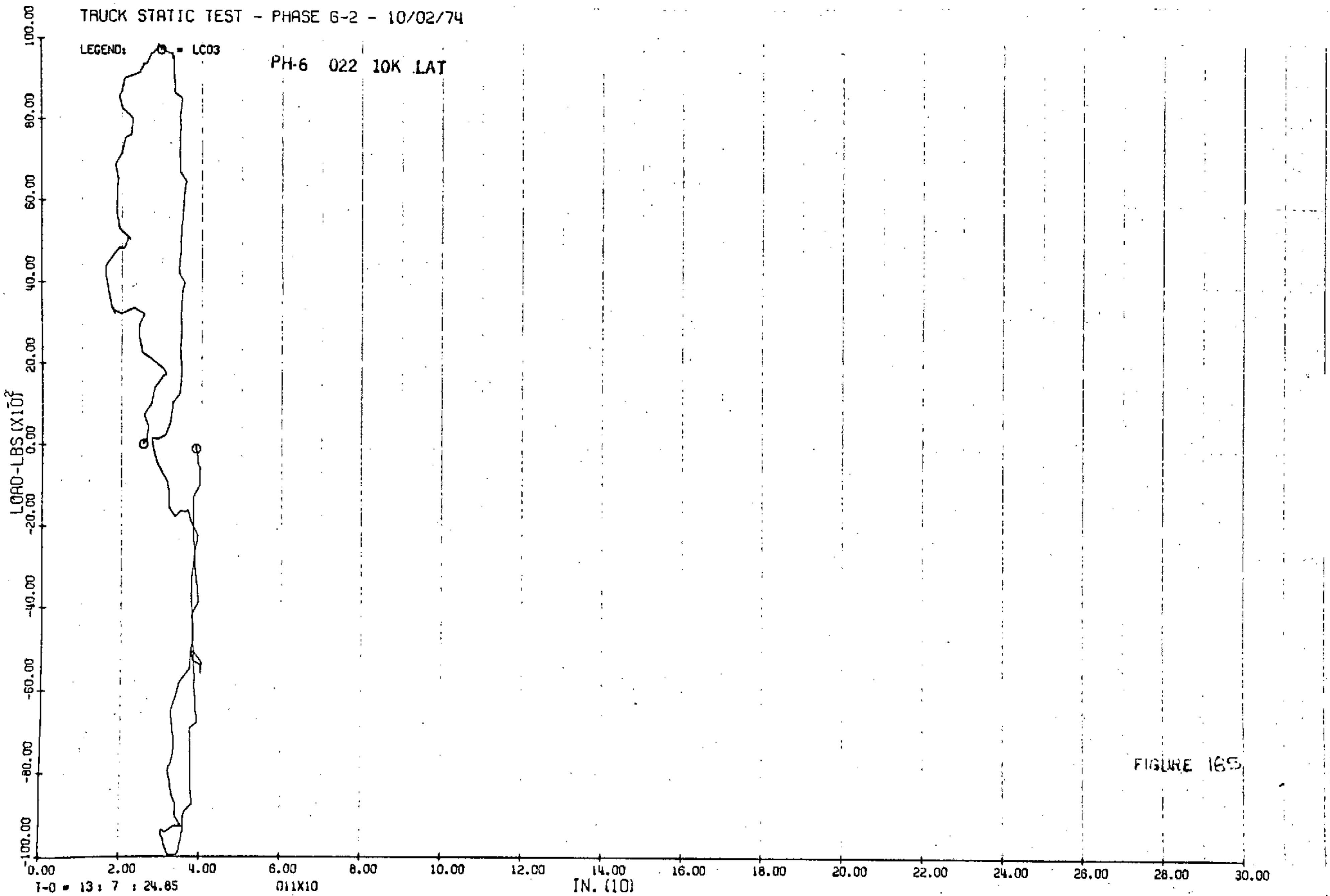


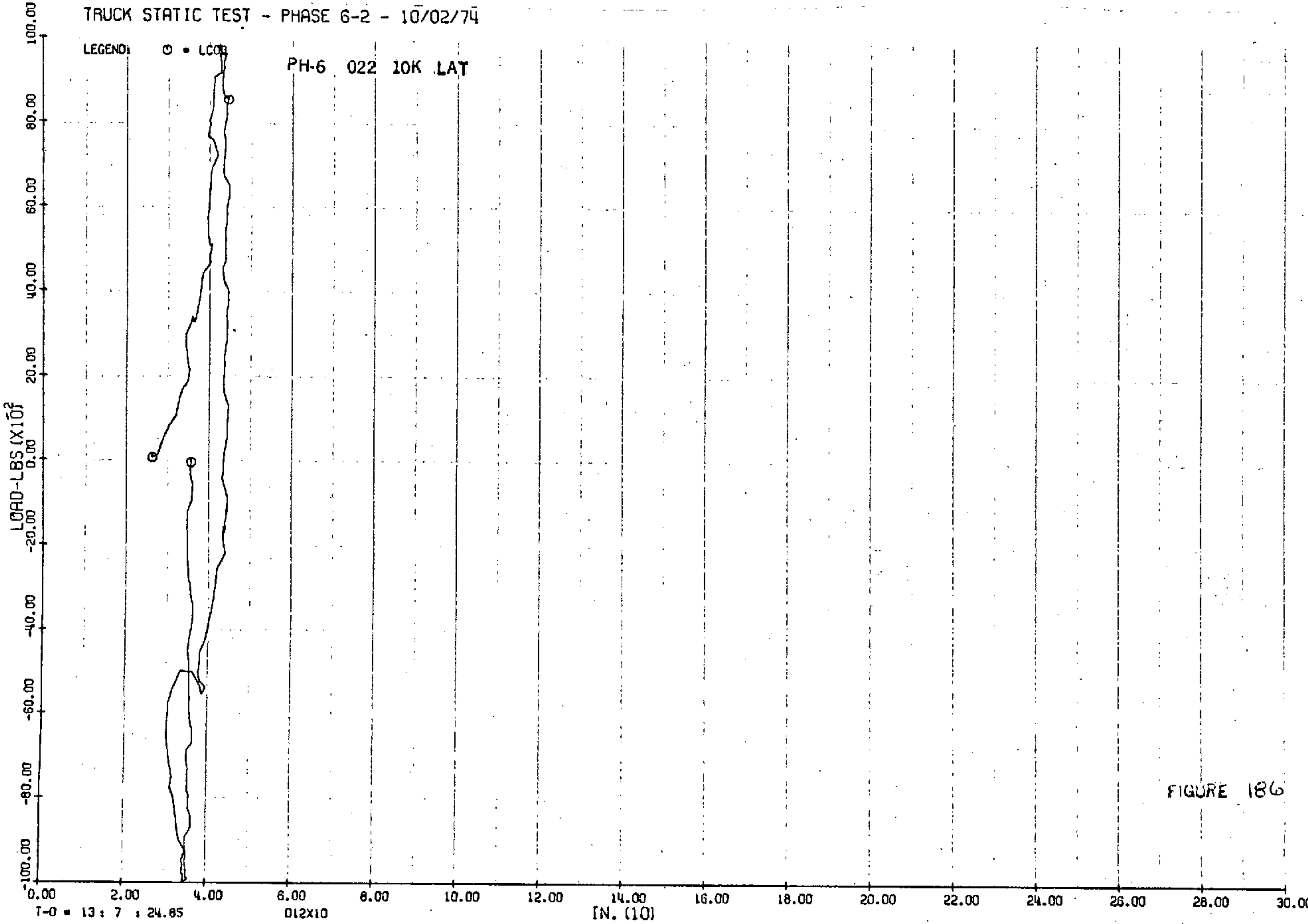
FIGURE 182

219


TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10²)
IN. (10)
T-0 = 13 : 7 : 24.85
D9X10
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
FIGURE 183

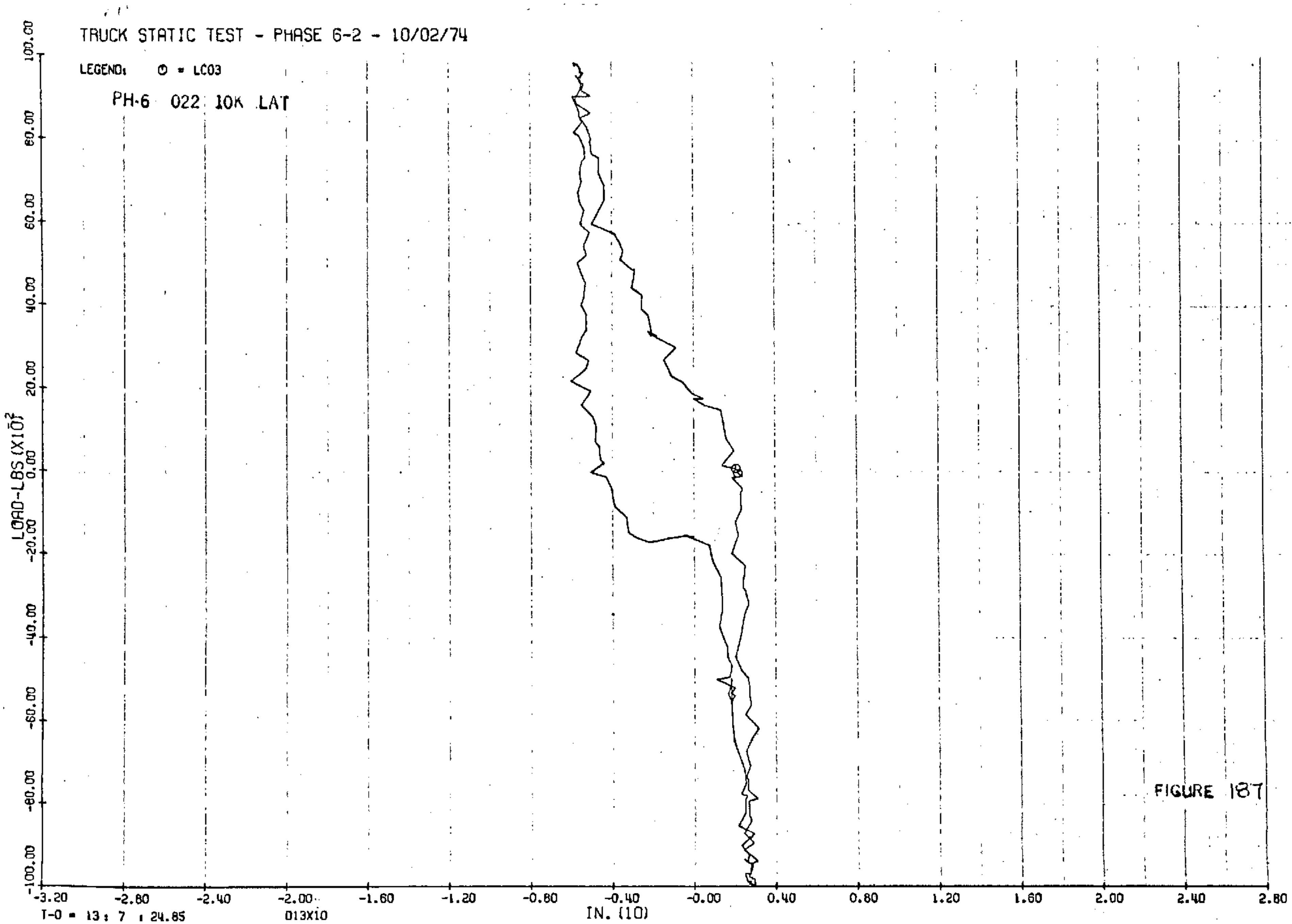

TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 13 : 7 : 24.85
010X10
FIGURE 184


TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊕ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 13 : 7 : 24.85
011X10
FIGURE 165



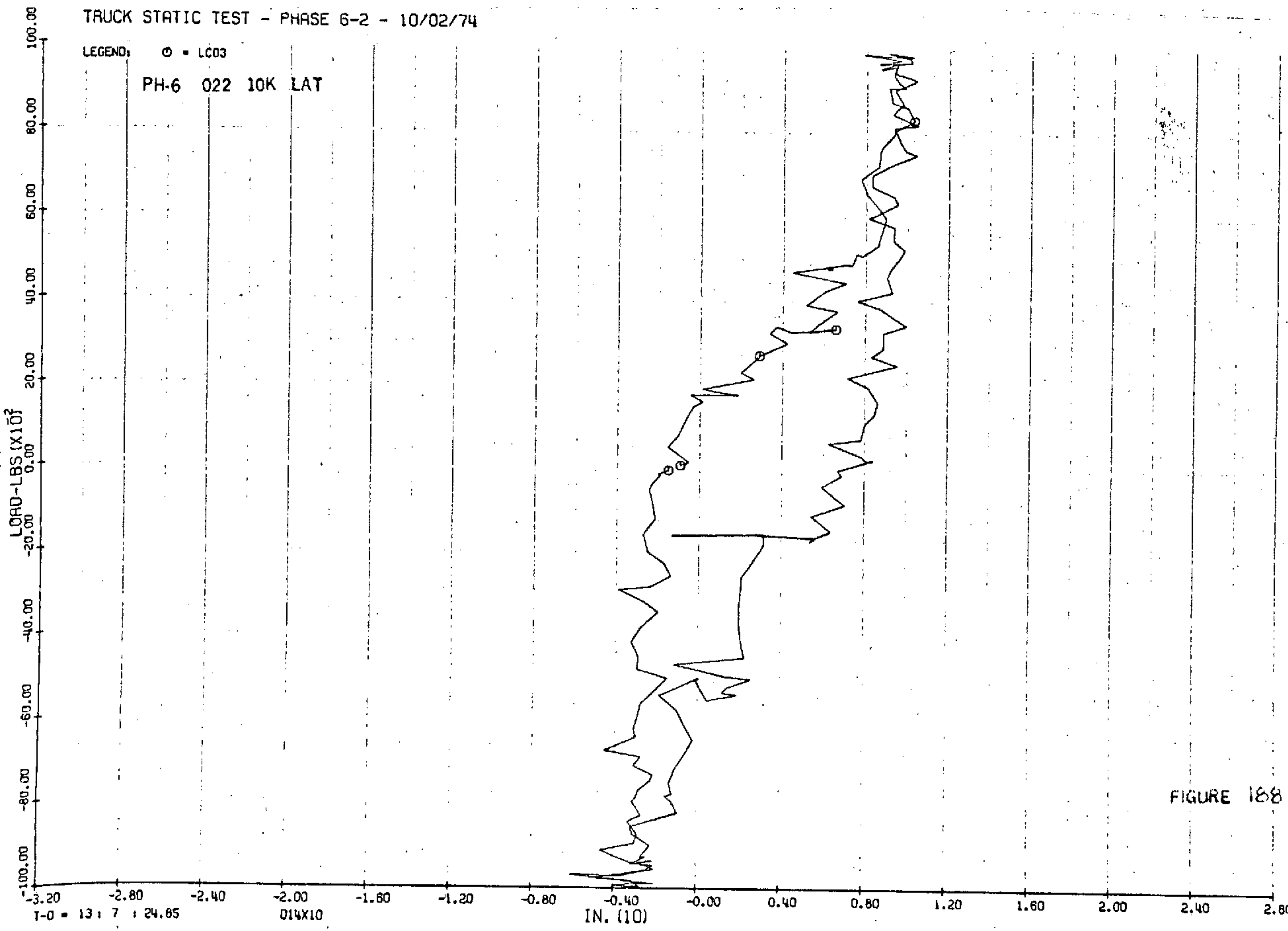
TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC08
PH-6 022 10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 13 : 7 : 24.85
012X10

FIGURE 186



TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
2.40
2.80
IN. (10)
T-0 = 13 : 7 : 24.85
013X10

FIGURE 187



TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10²)
IN. (10)
T-0 = 13 : 7 : 24.85
014X10

FIGURE 188

TRUCK STATIC TEST - PHASE 6-2 - 10/02/74

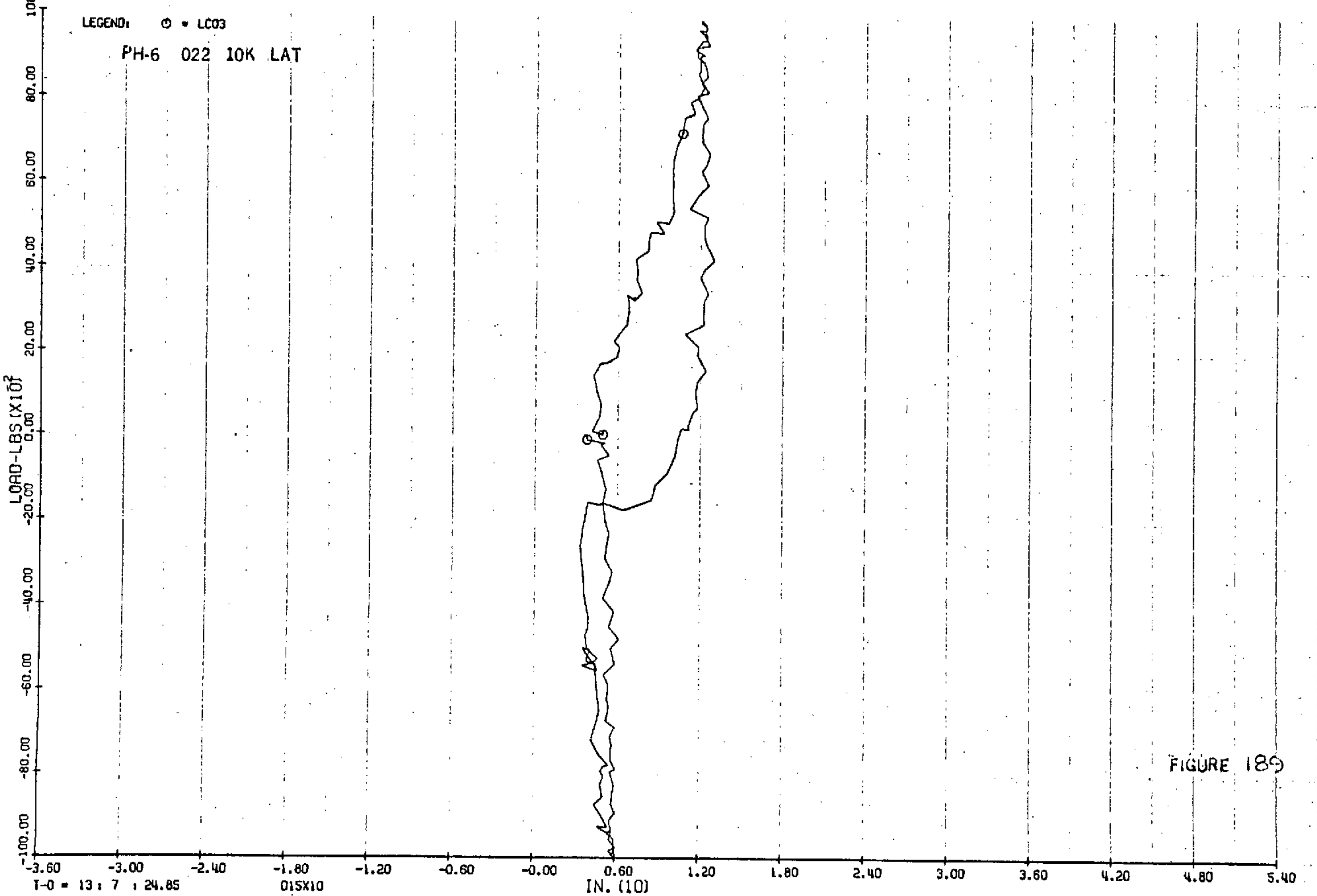


FIGURE 189

TR-131S-74

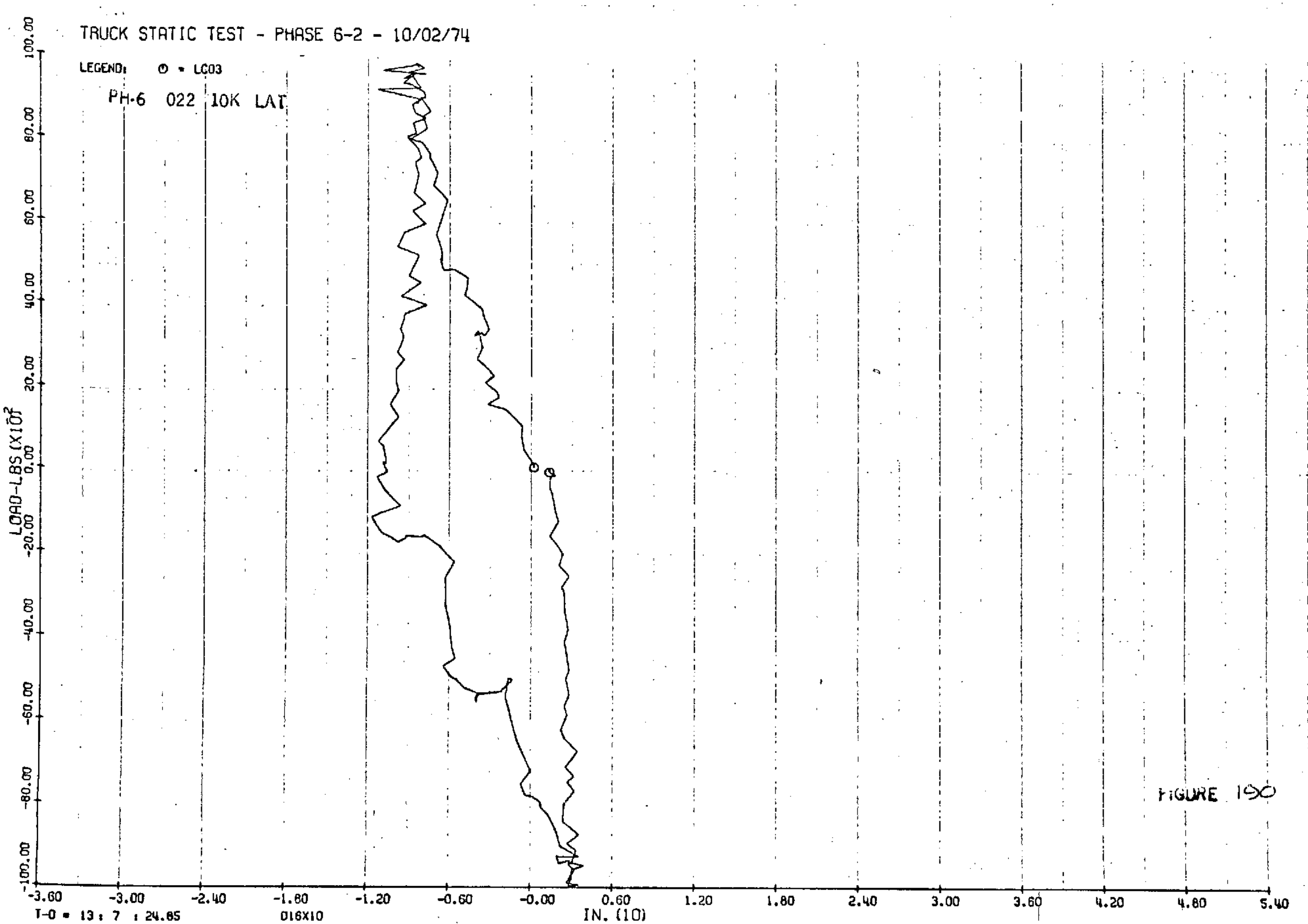


FIGURE 190

TR-131S-74

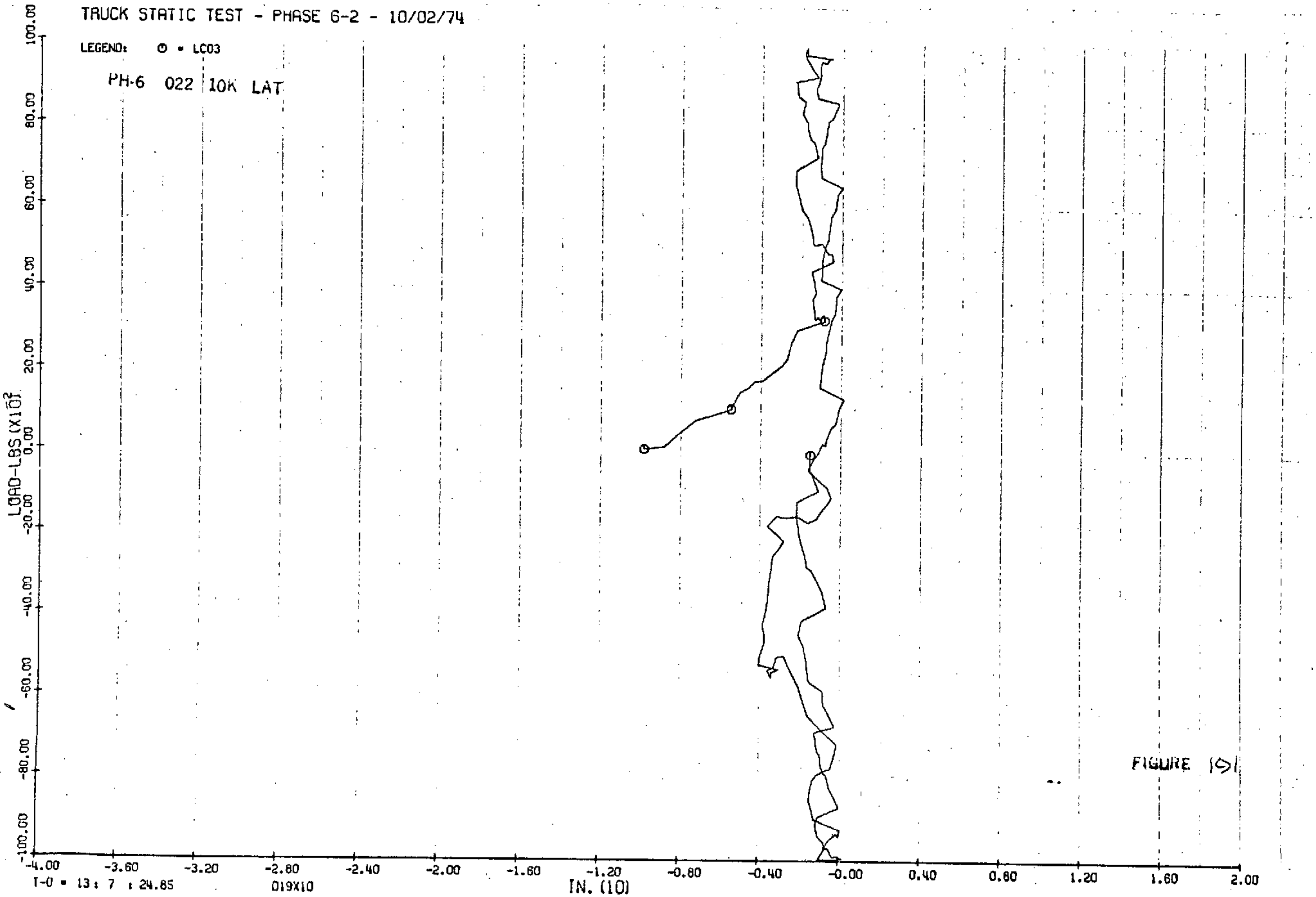


FIGURE 191

TR-131S-74

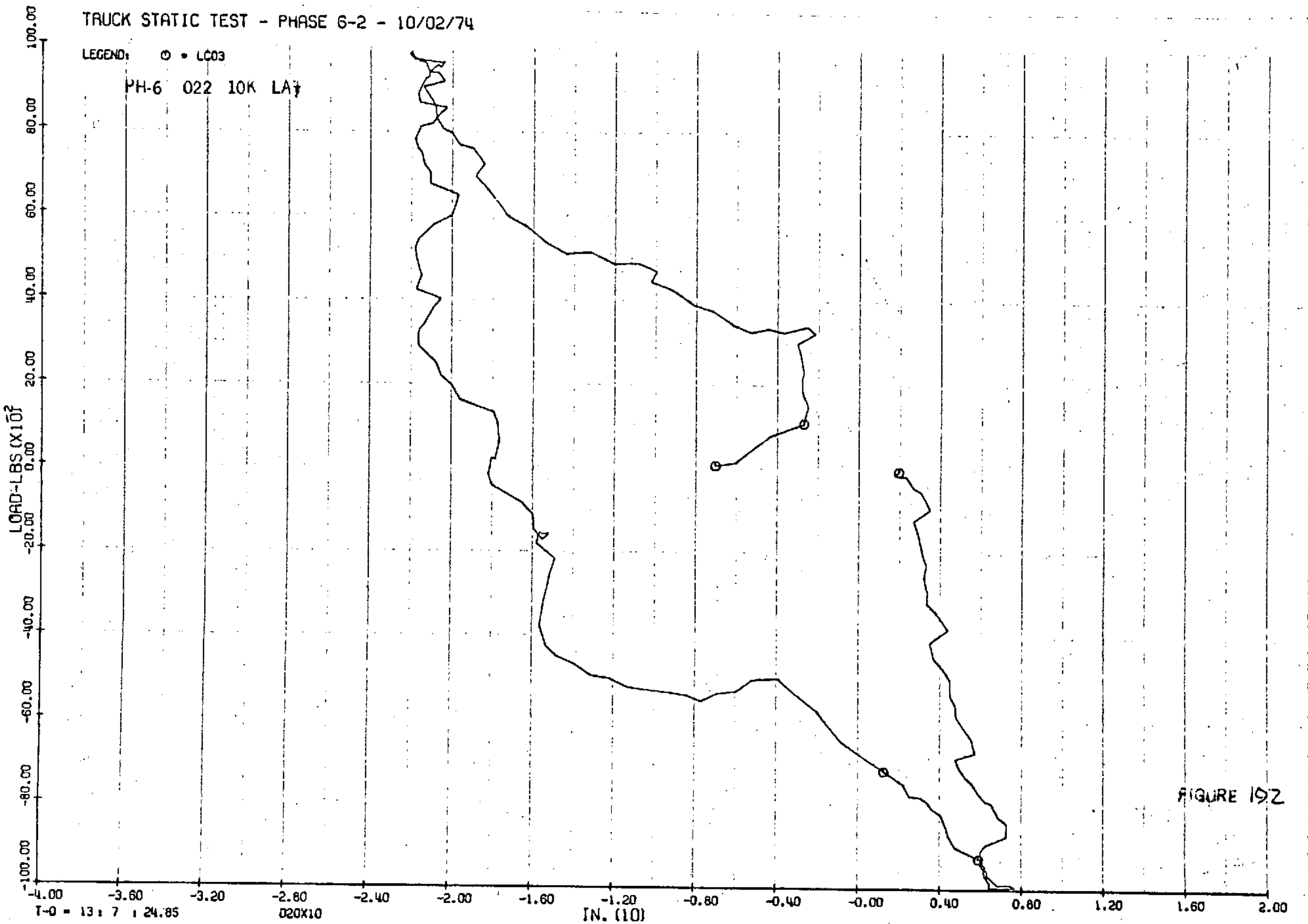
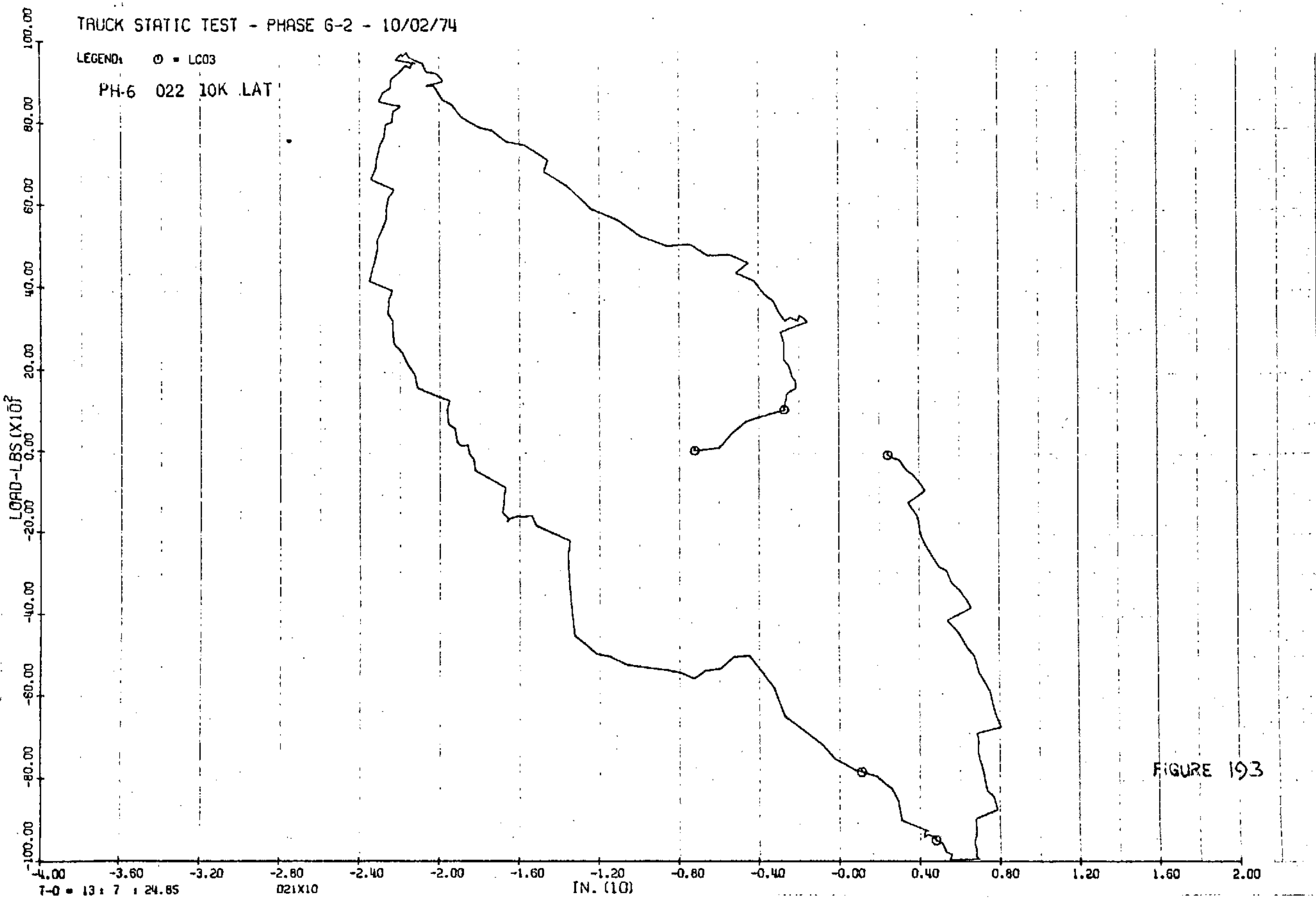


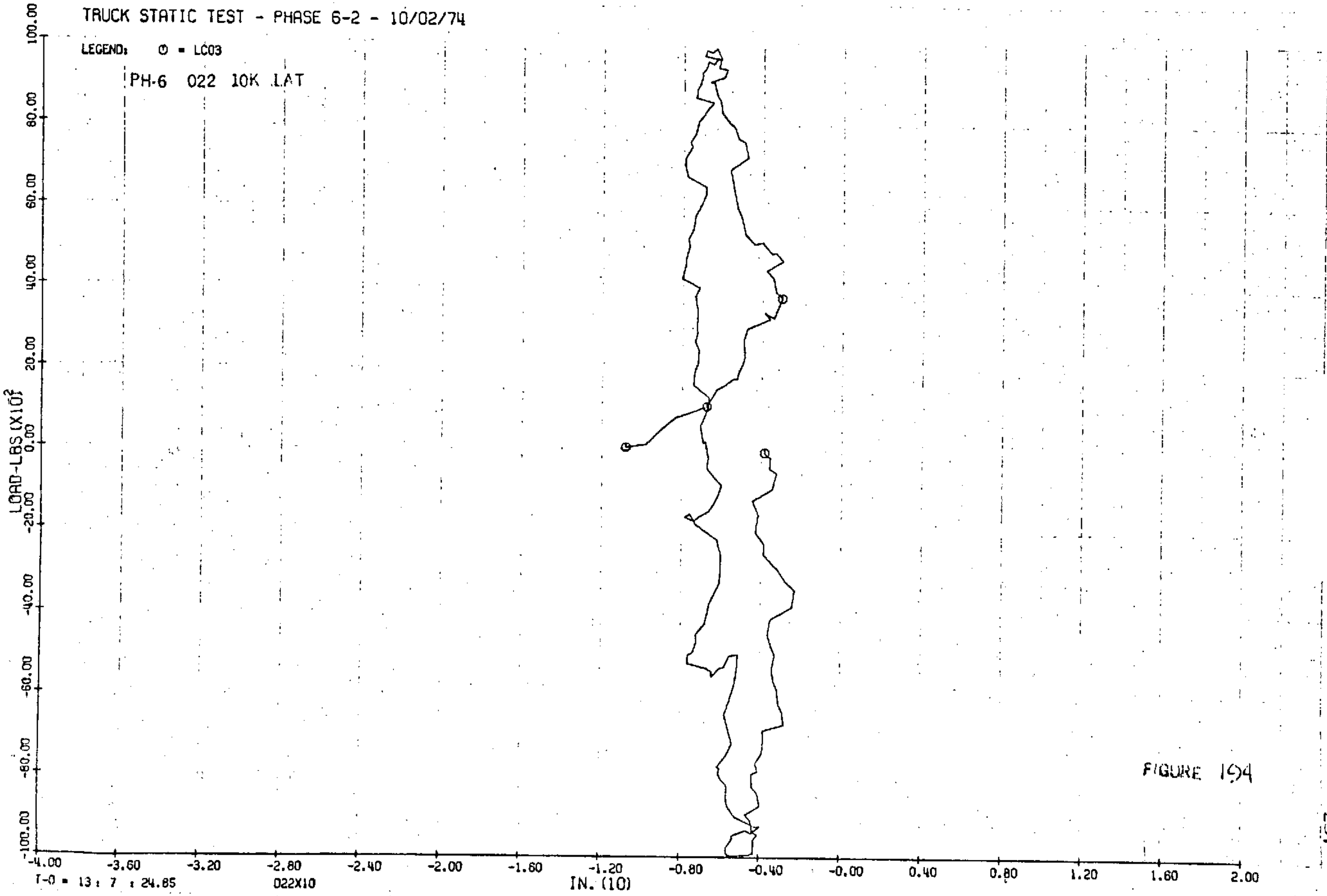
FIGURE 192

TR-131S-74



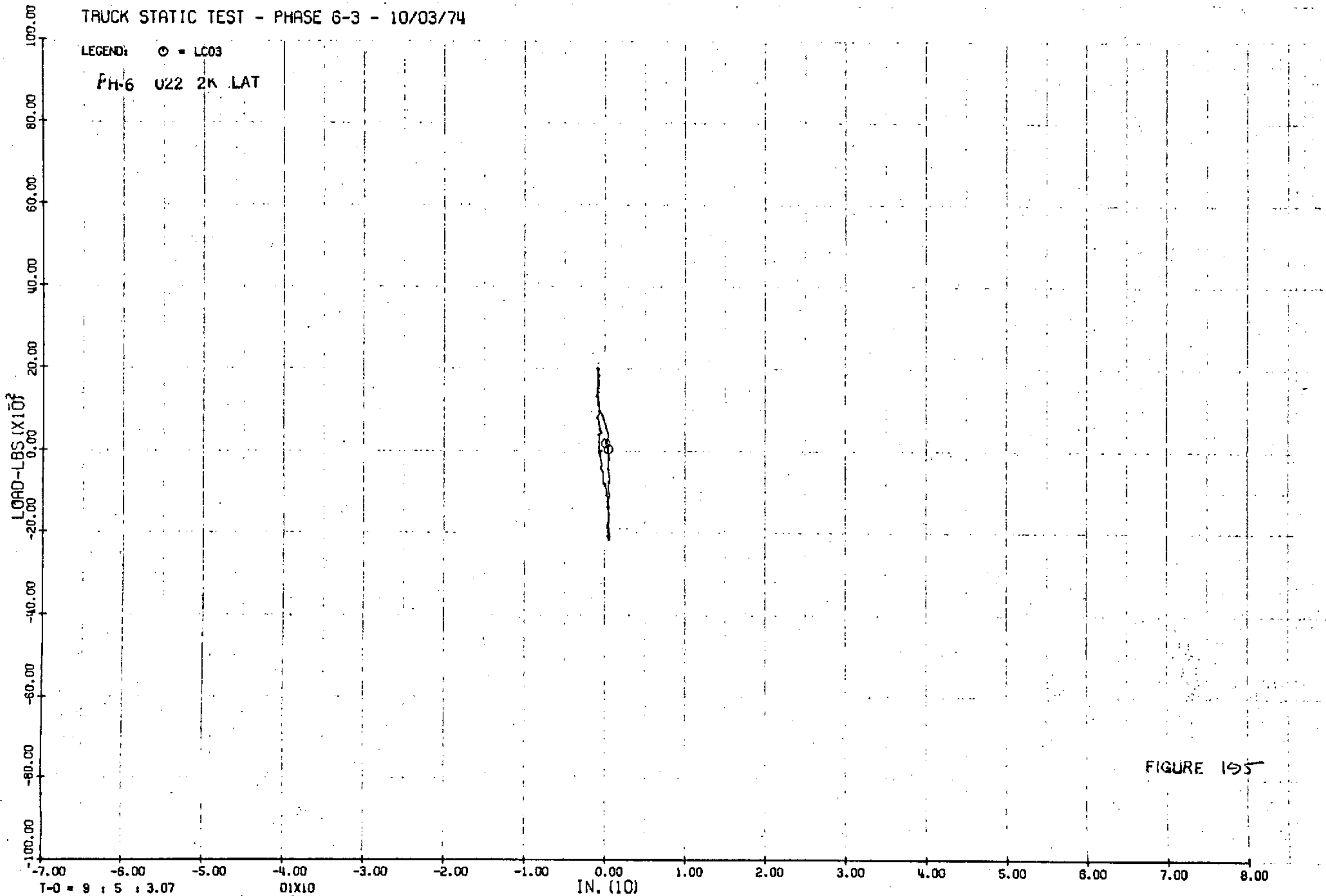
TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
IN. (10)
T-0 = 13: 7 : 24.85
D21X10

FIGURE 193



TRUCK STATIC TEST - PHASE 6-2 - 10/02/74
LEGEND: ⊙ = LC03
PH-6 022 10K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
IN. (10)
T-0 = 13 : 7 : 24.85
022X10

FIGURE 194



TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 U22 2K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 9 : 5 : 3.07
D1X10

FIGURE 195

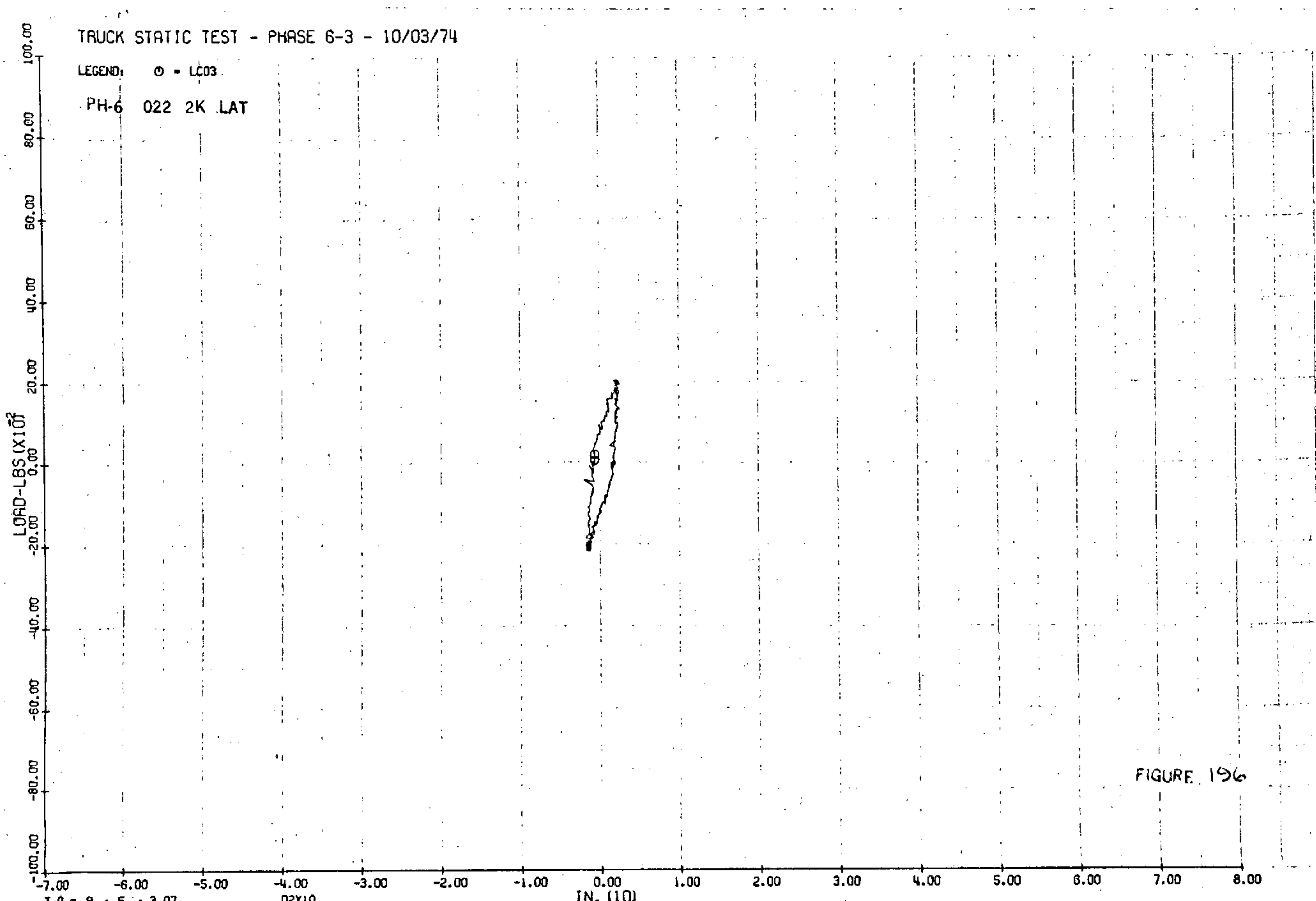


FIGURE 196

TR-131S-74

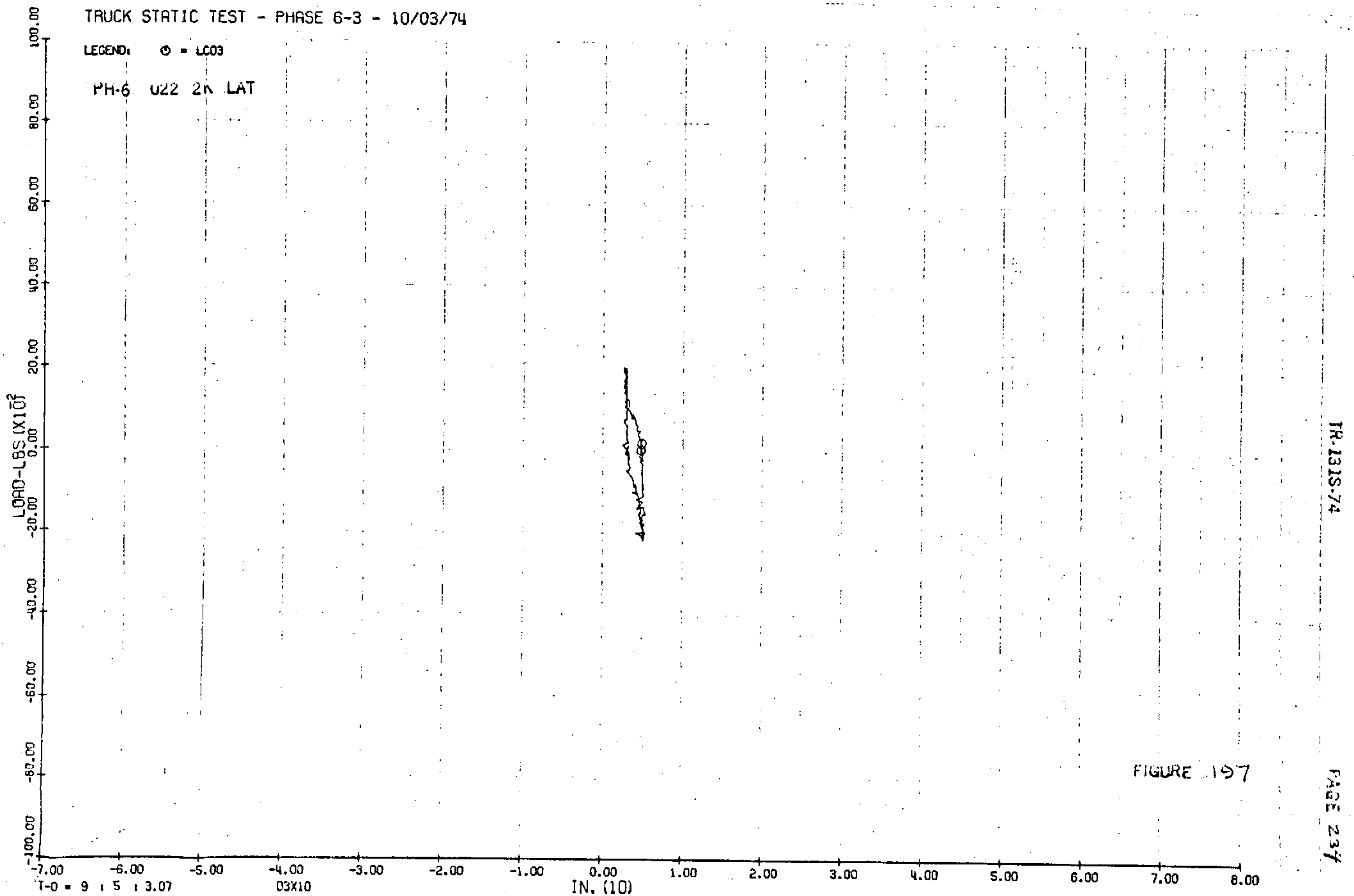
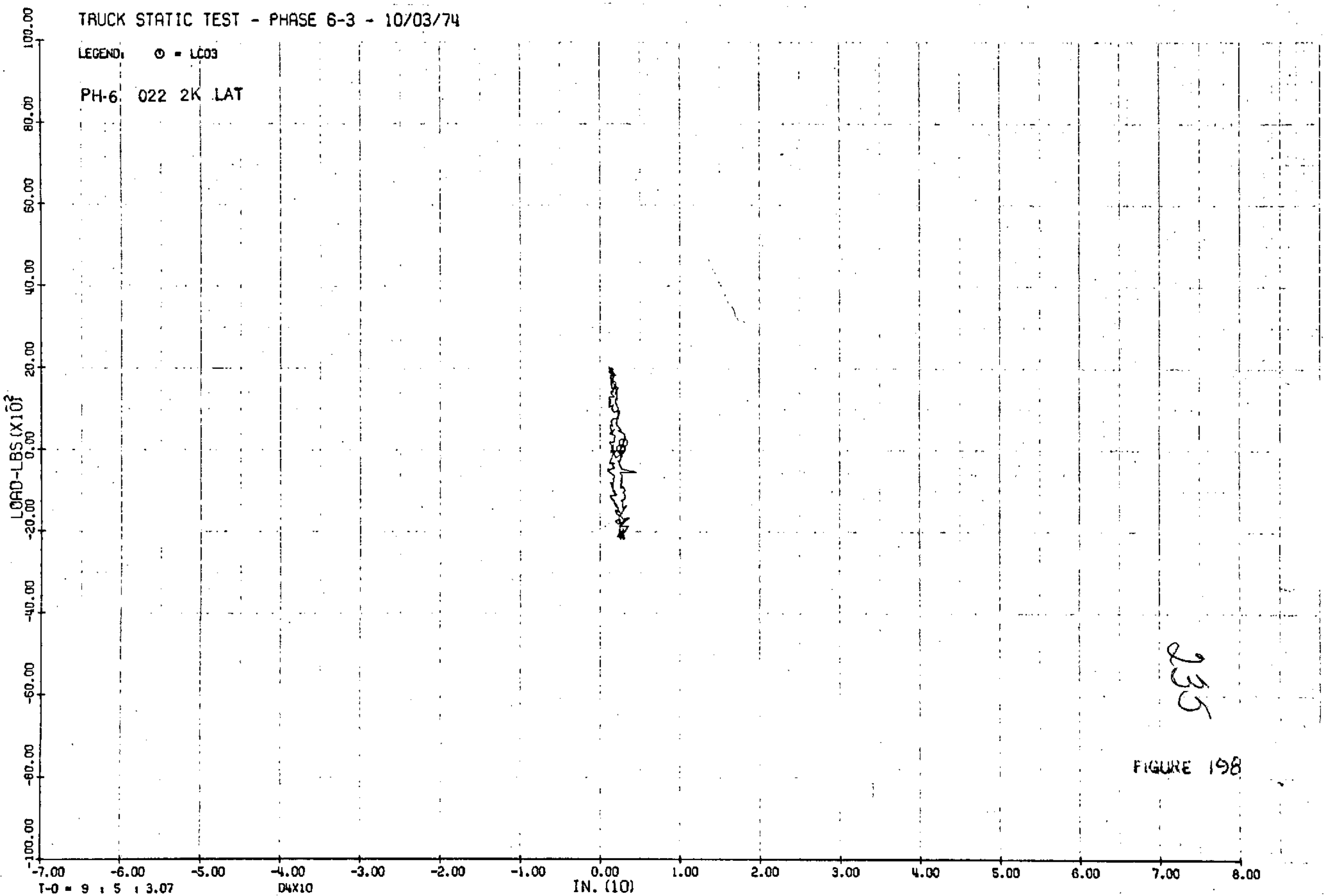


FIGURE 197

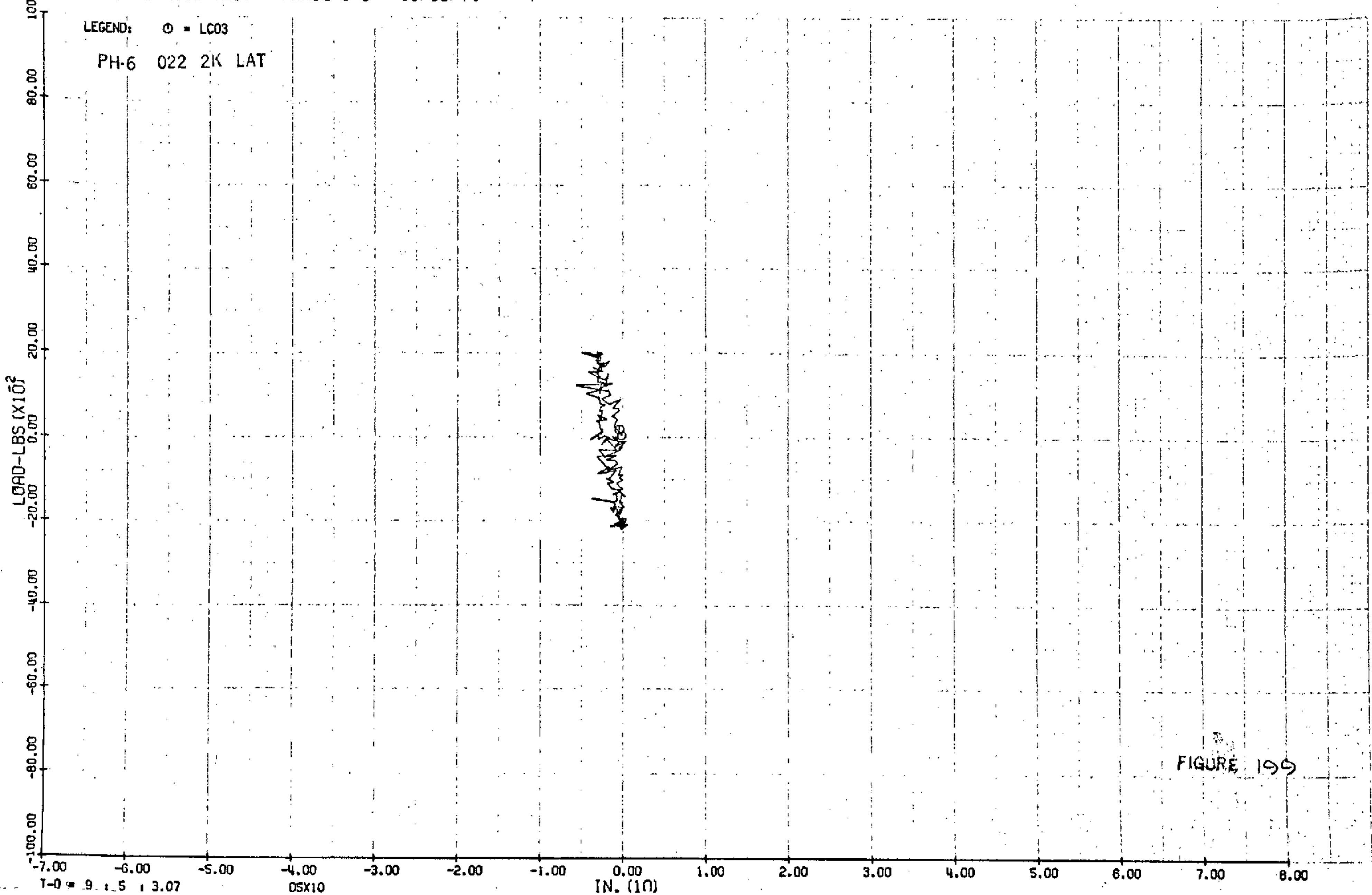
TR-131S-74



235

FIGURE 198

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74



T-0 = 9 : 5 : 3.07

FIGURE 199

TR-1315-74

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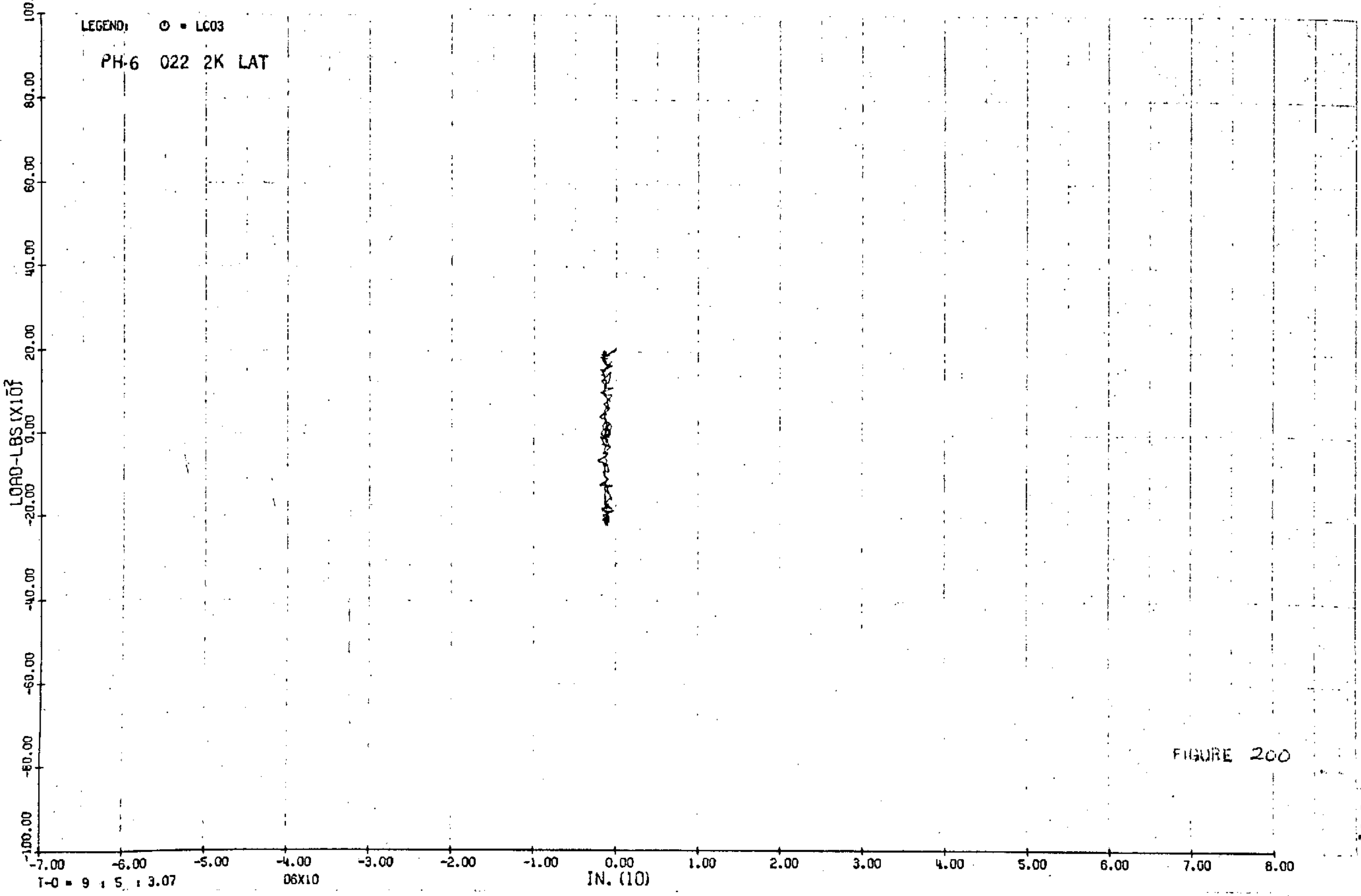
TRUCK STATIC TEST - PHASE 6-3 - 10/03/74



T-0 = 9 : 5 : 3.07

06X10

FIGURE 200

TR-131S-74

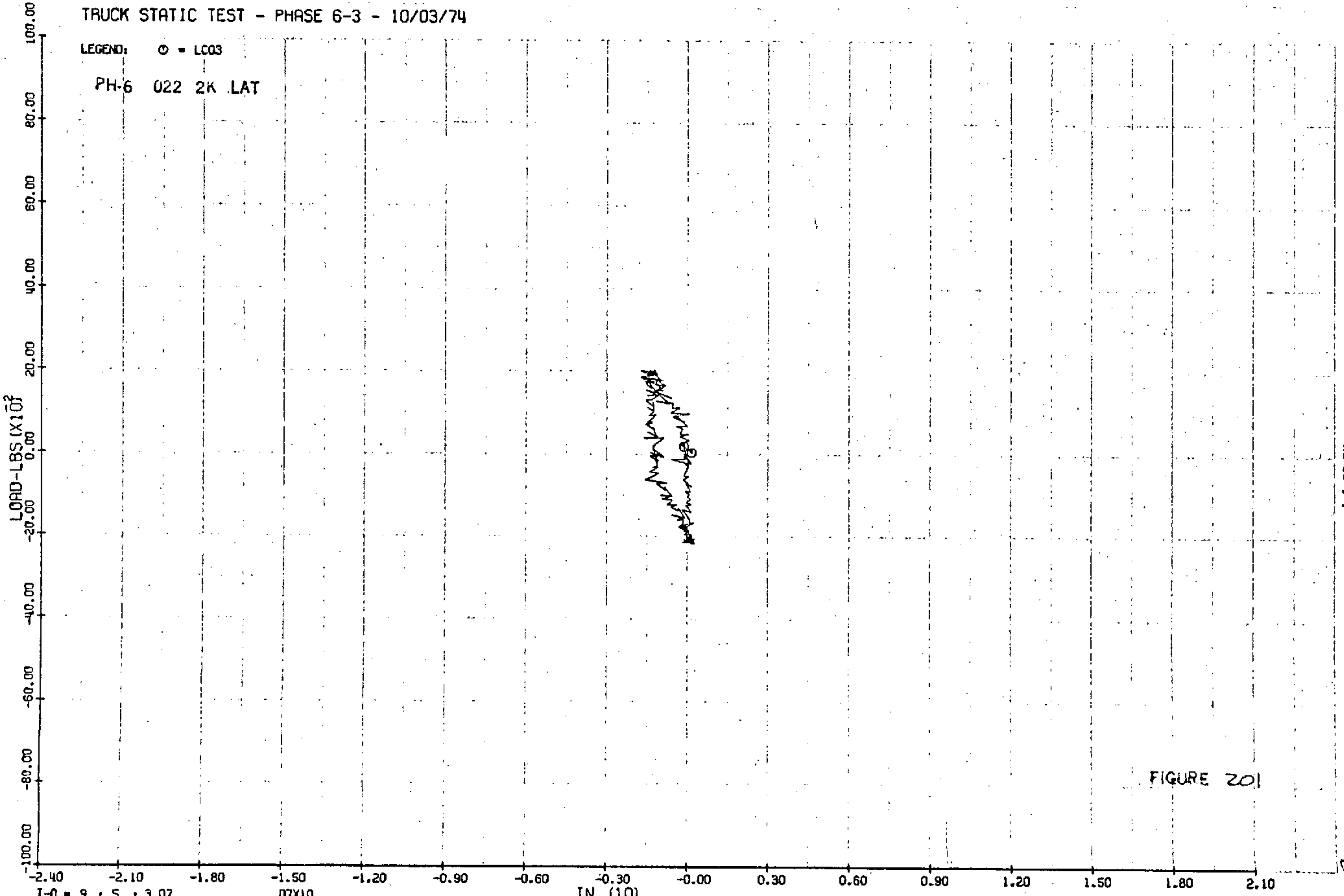


FIGURE 201

TR-131S-74

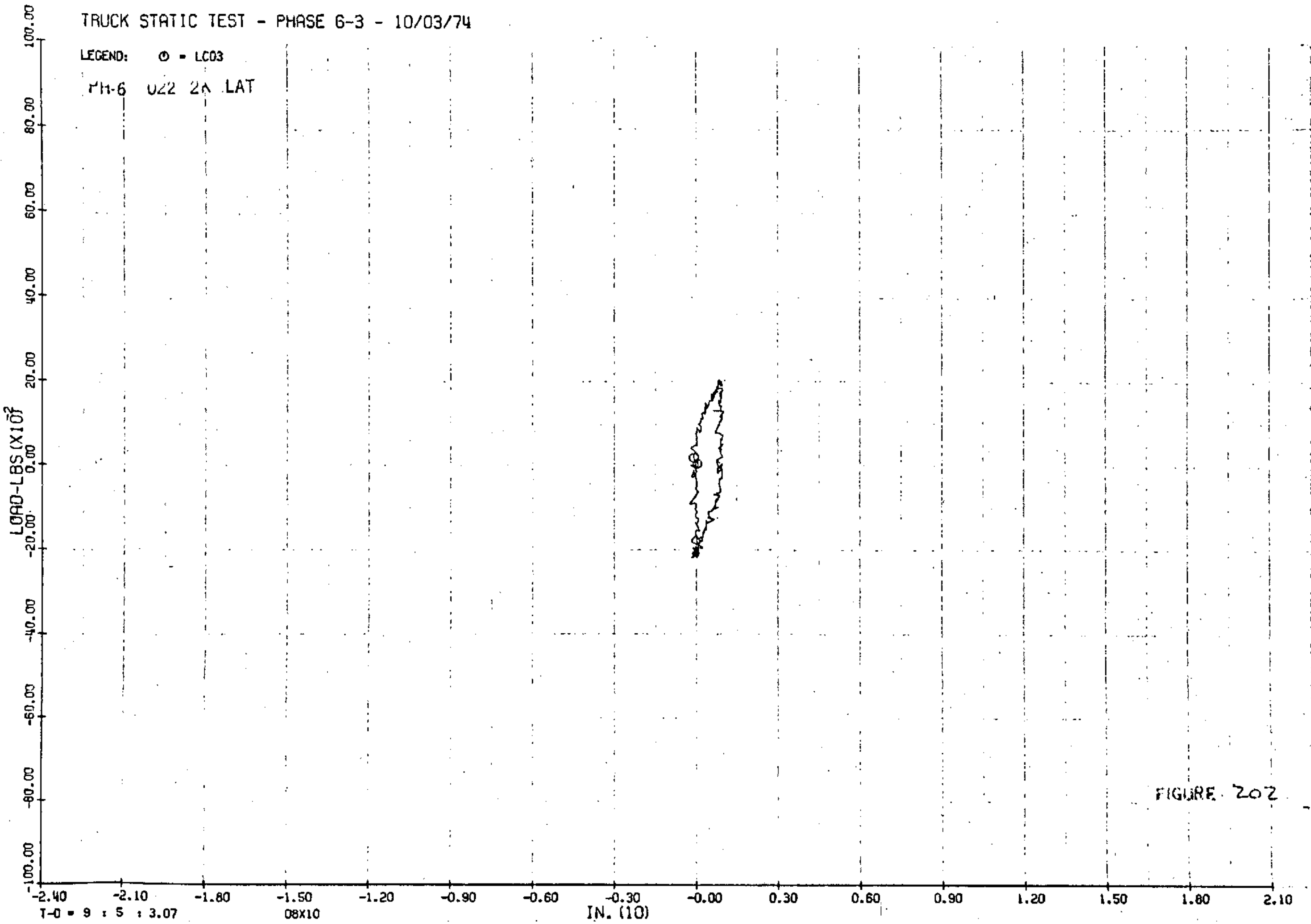


FIGURE 202

TR-131S-74

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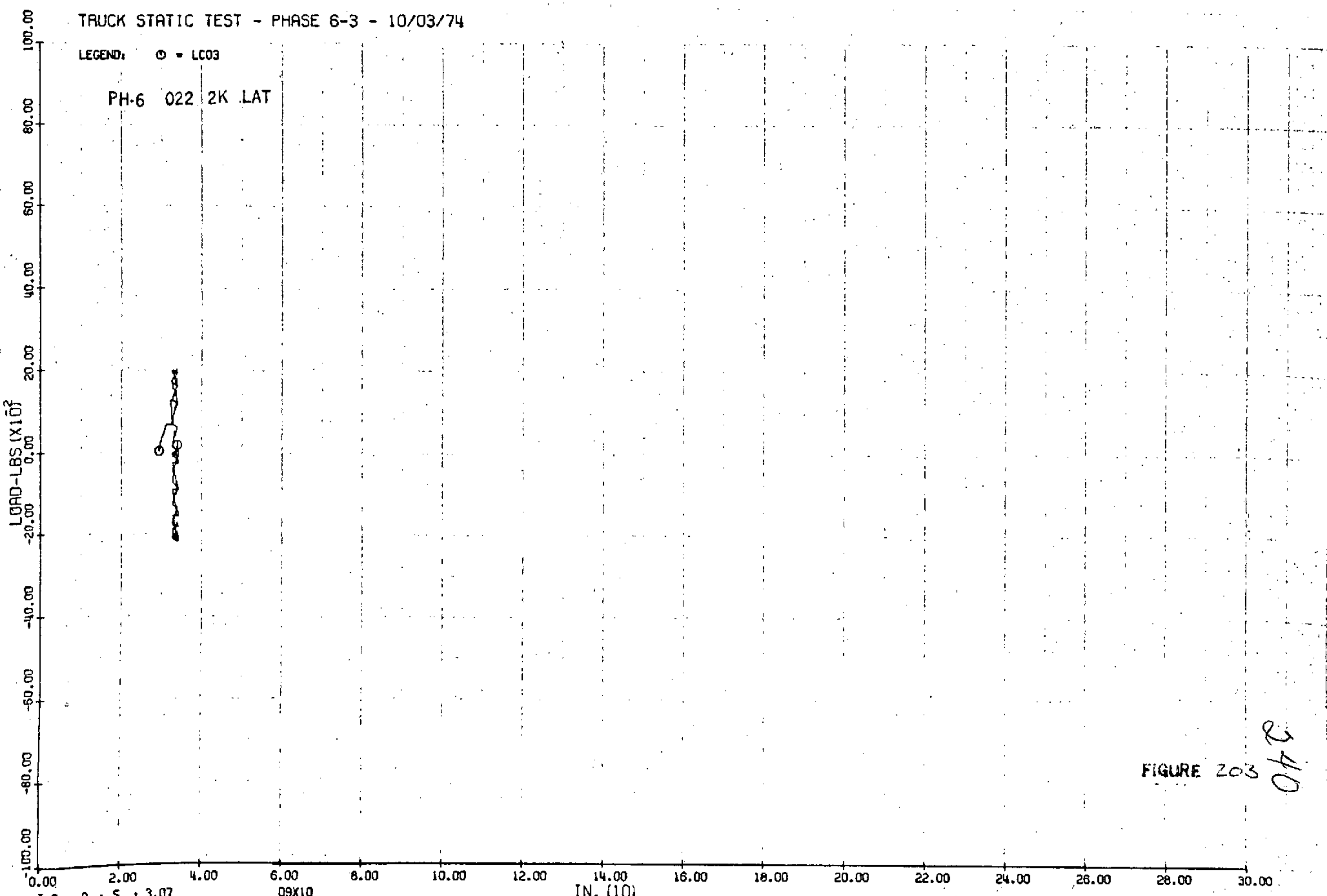


FIGURE 203

240

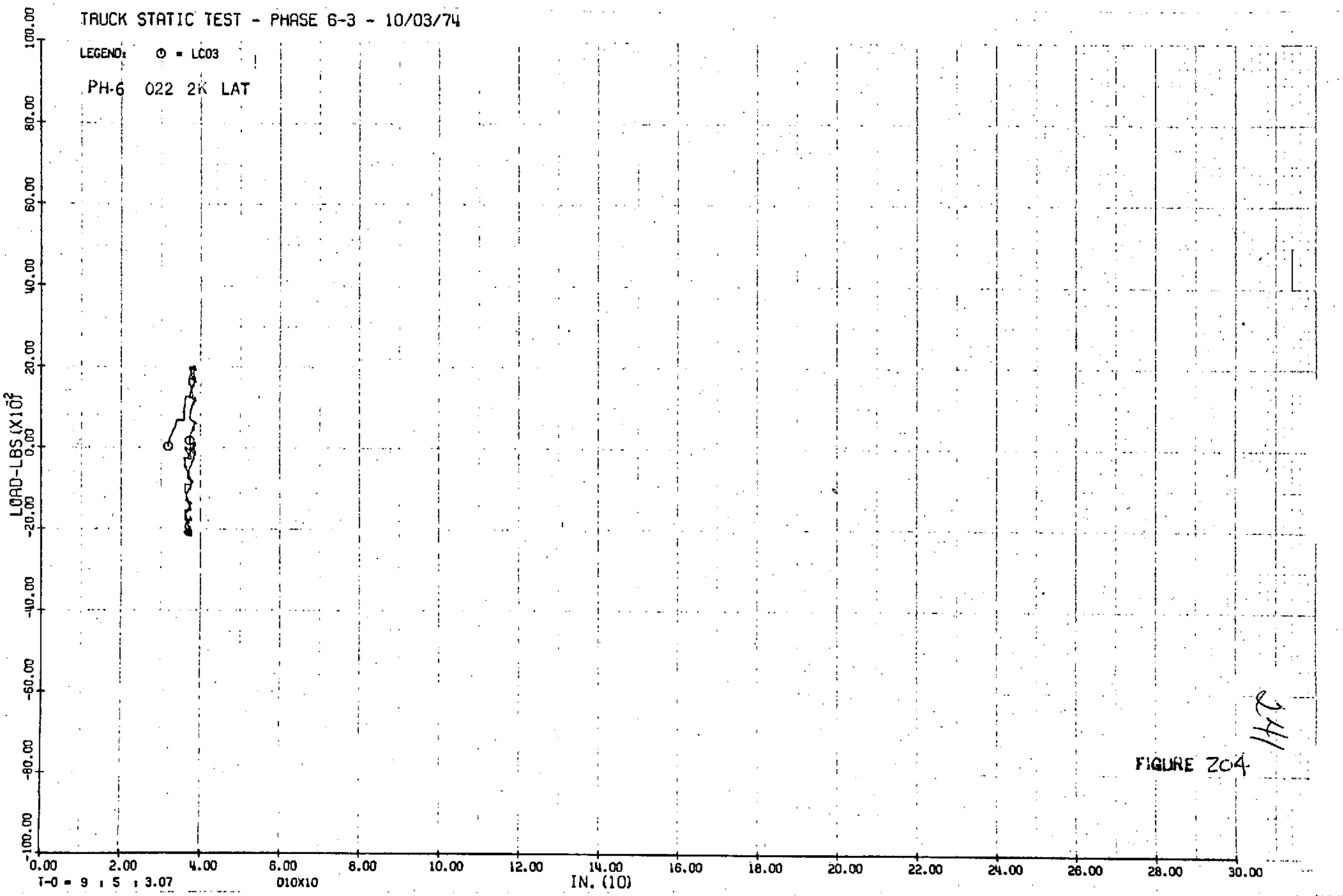


FIGURE 204

241

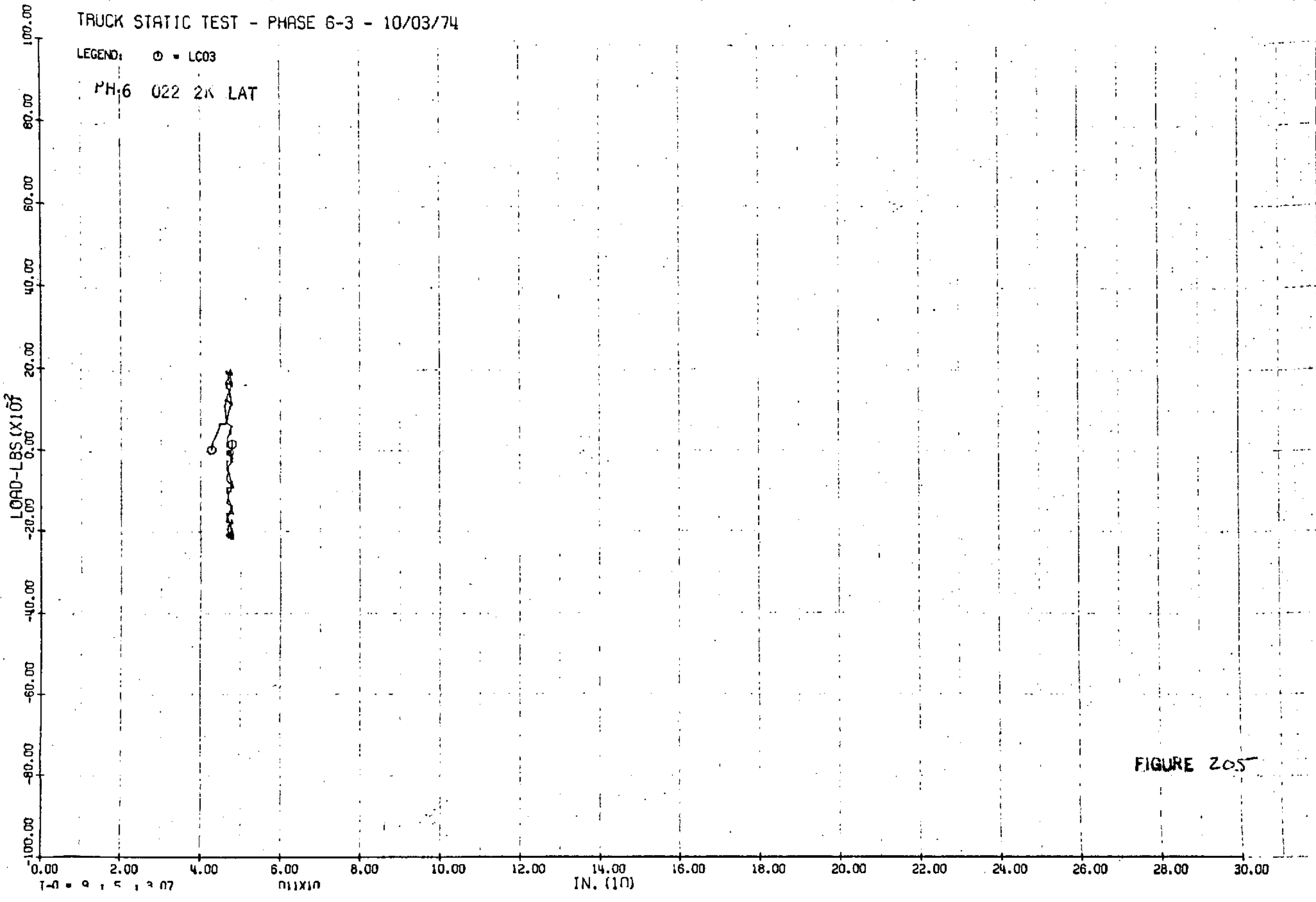


FIGURE 205

TR-1315-74

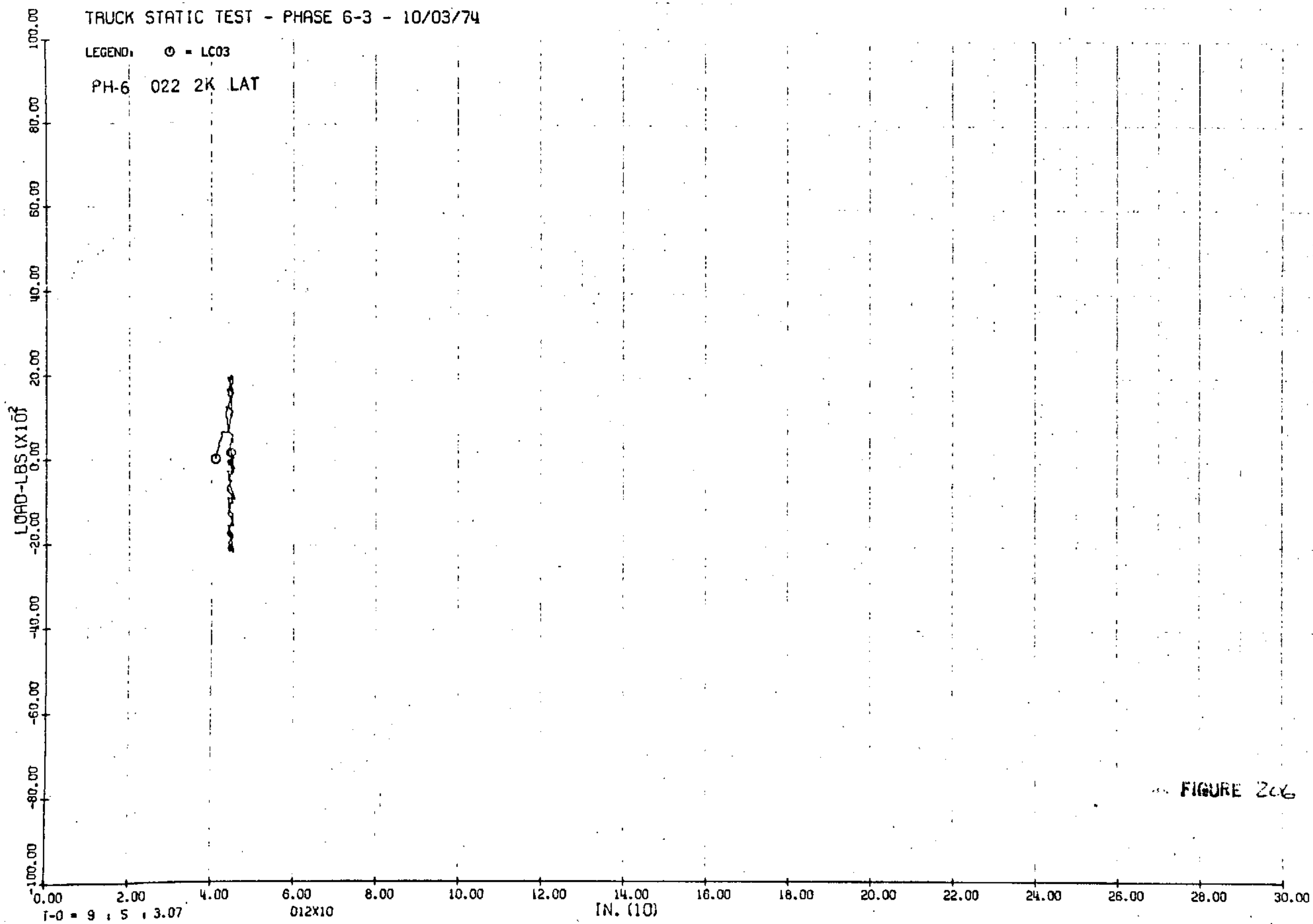
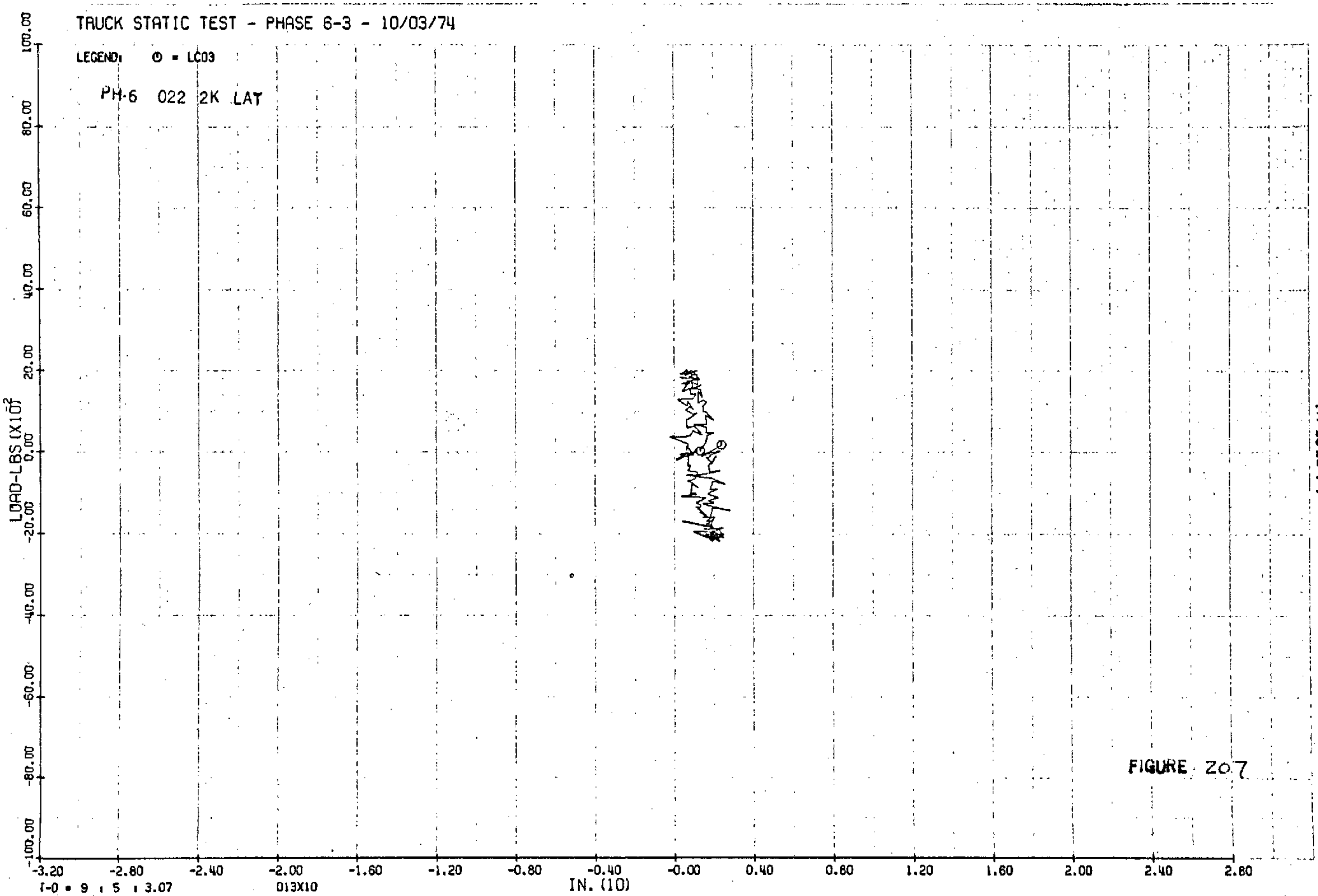


FIGURE 266

TR-131S-74

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74



I-0 = 9 ; 5 ; 3.07 D13X10

FIGURE 207

TR-131S-74

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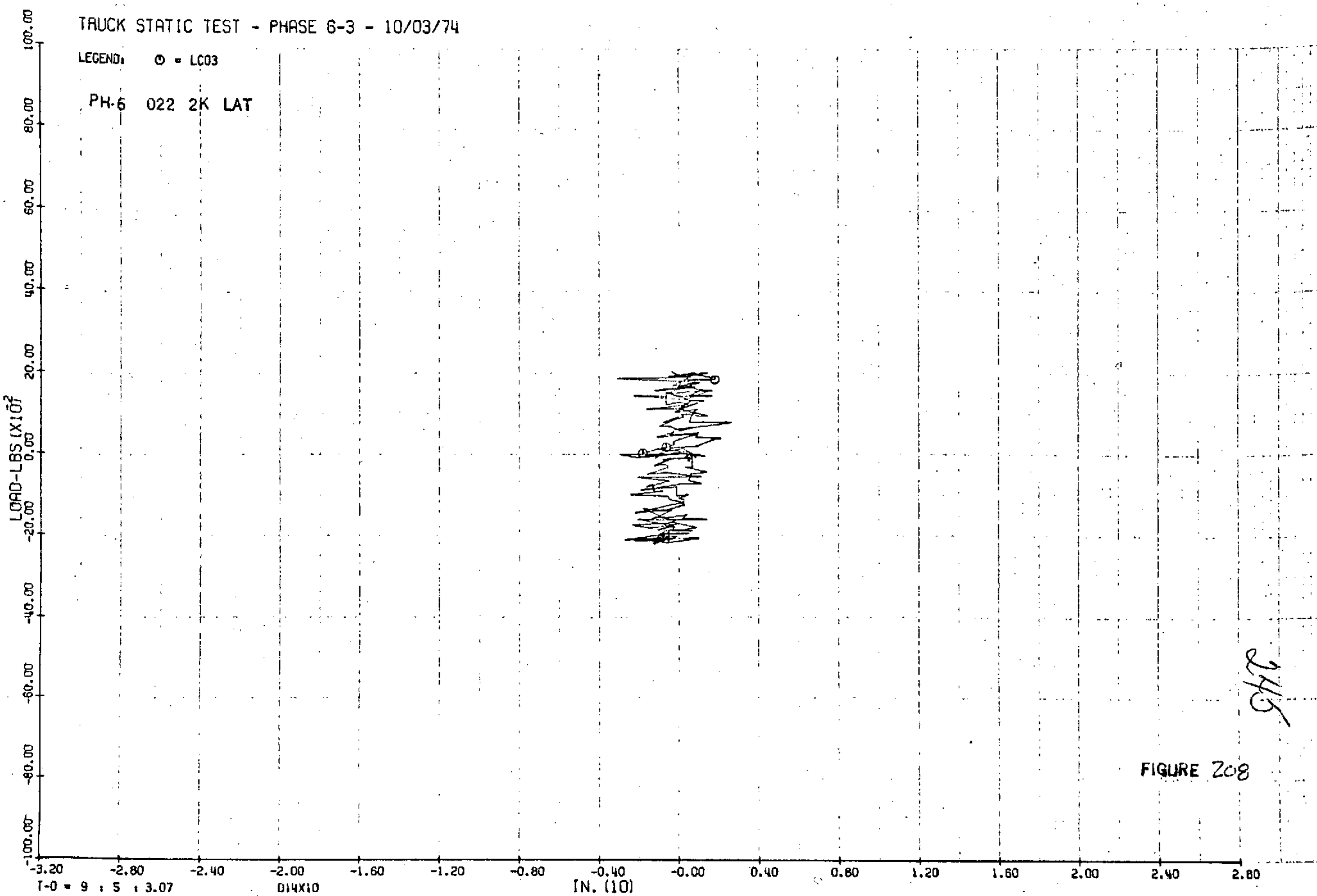


FIGURE 208

245

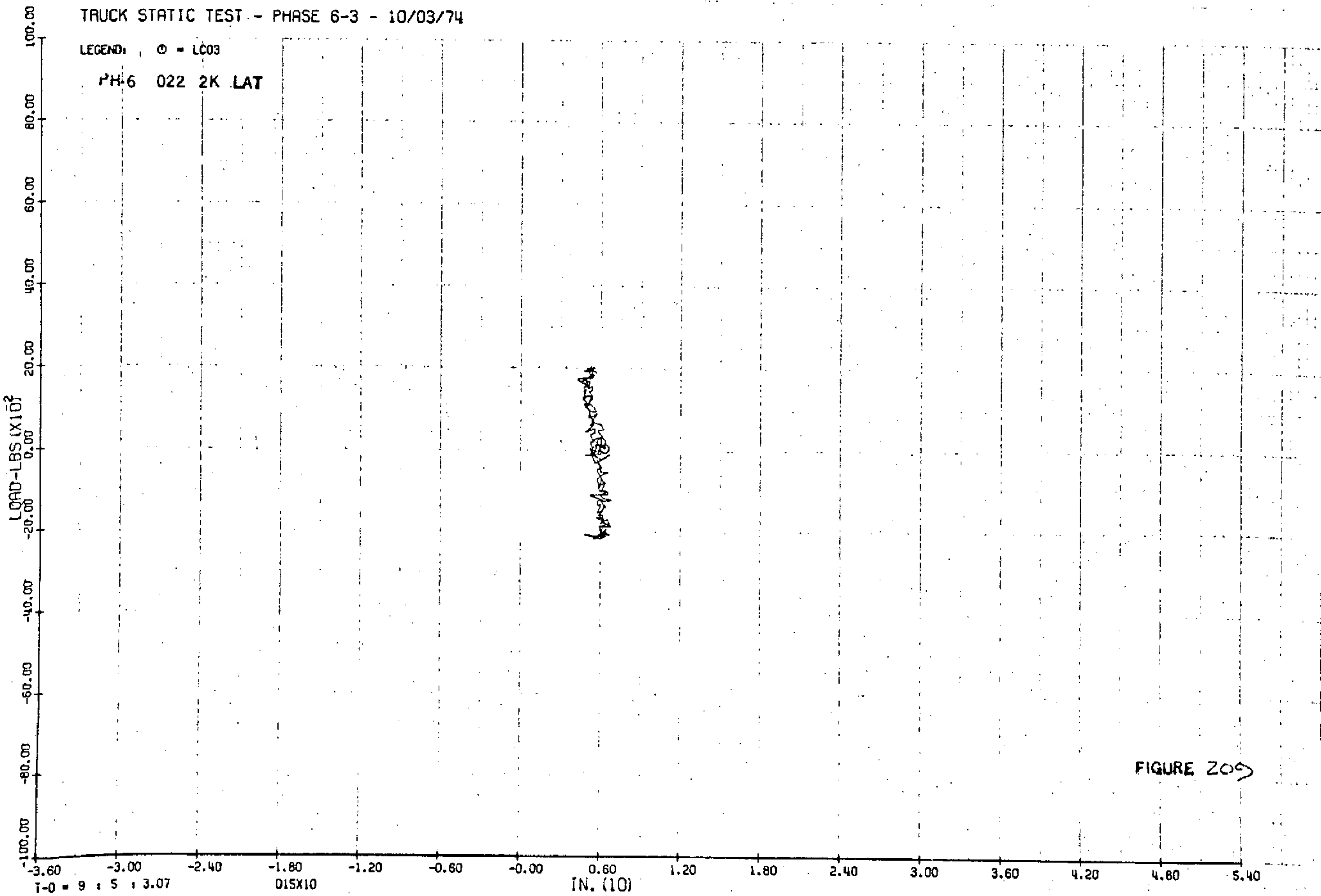

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: , ⊕ = LC03
PH 6 022 2K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
5.40
IN. (10)
T-0 = 9 : 5 : 3.07
DISX10

FIGURE 209

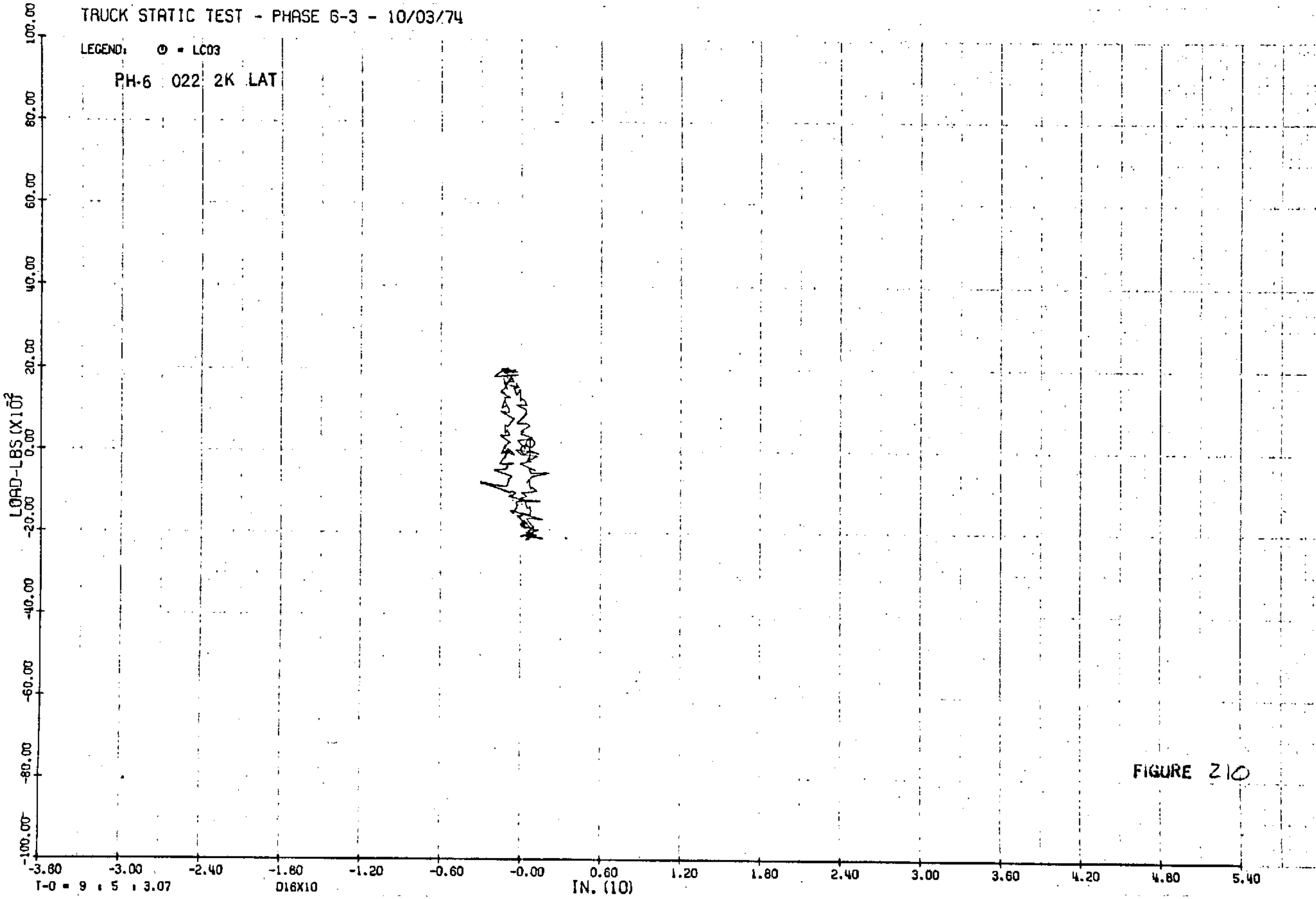

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 2K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
5.40
IN. (10)
T-0 = 9 : 5 : 3.07
D16X10

FIGURE 210

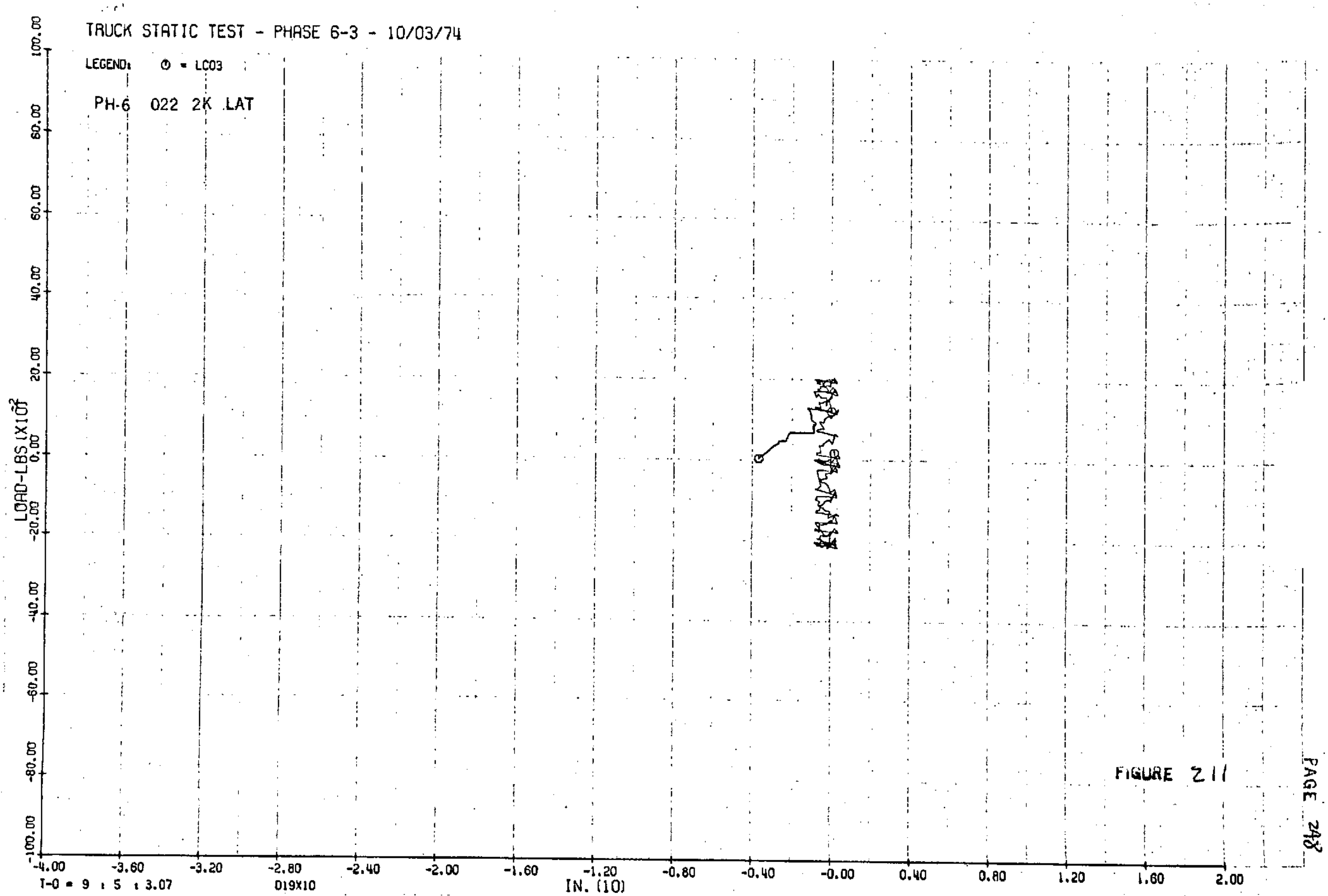

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 2K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
IN. (10)
T-0 = 9 : 5 : 3.07
019X10

FIGURE 211

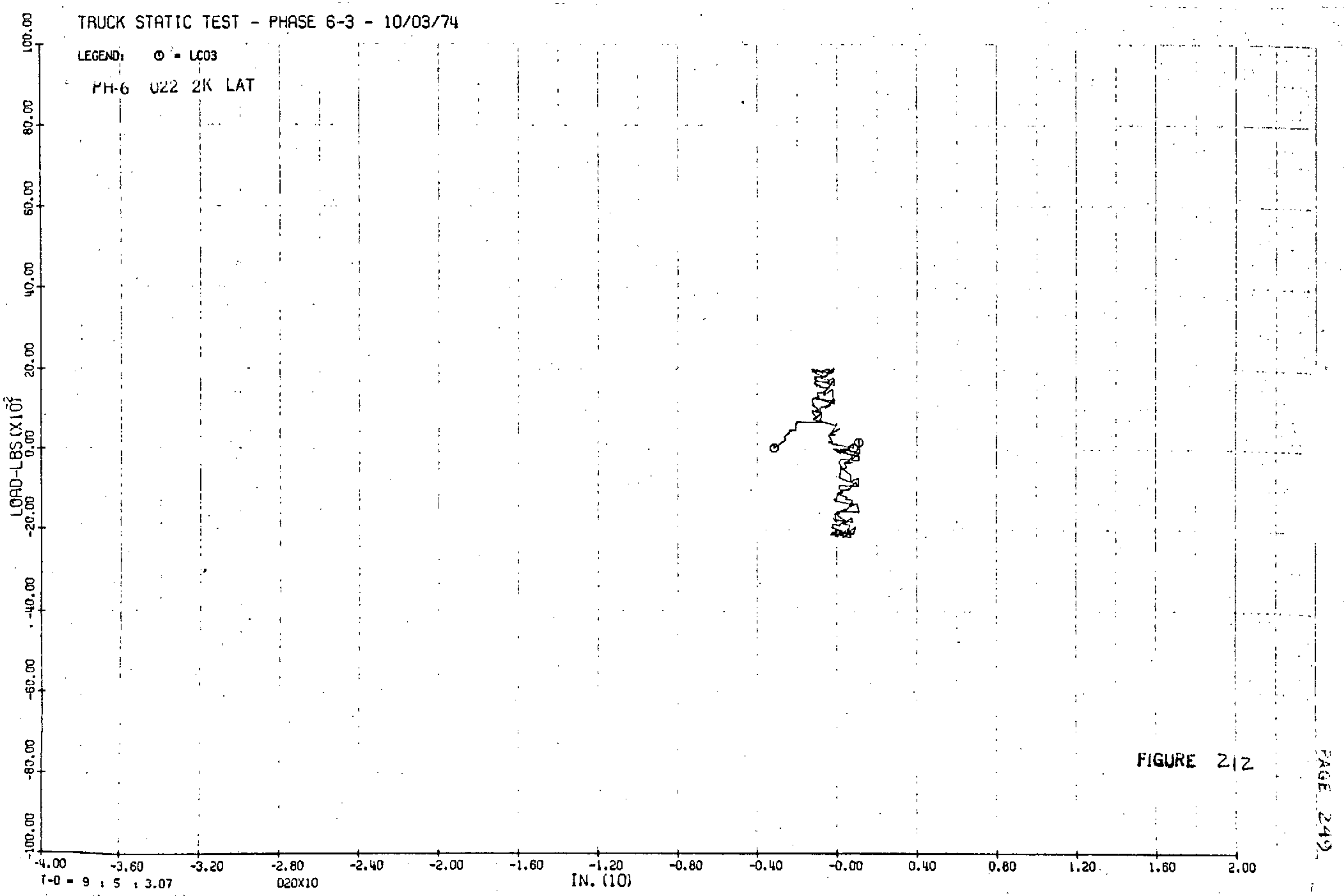

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 U22 2K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
IN. (10)
T-0 = 9 : 5 : 3.07
020X10

FIGURE 212

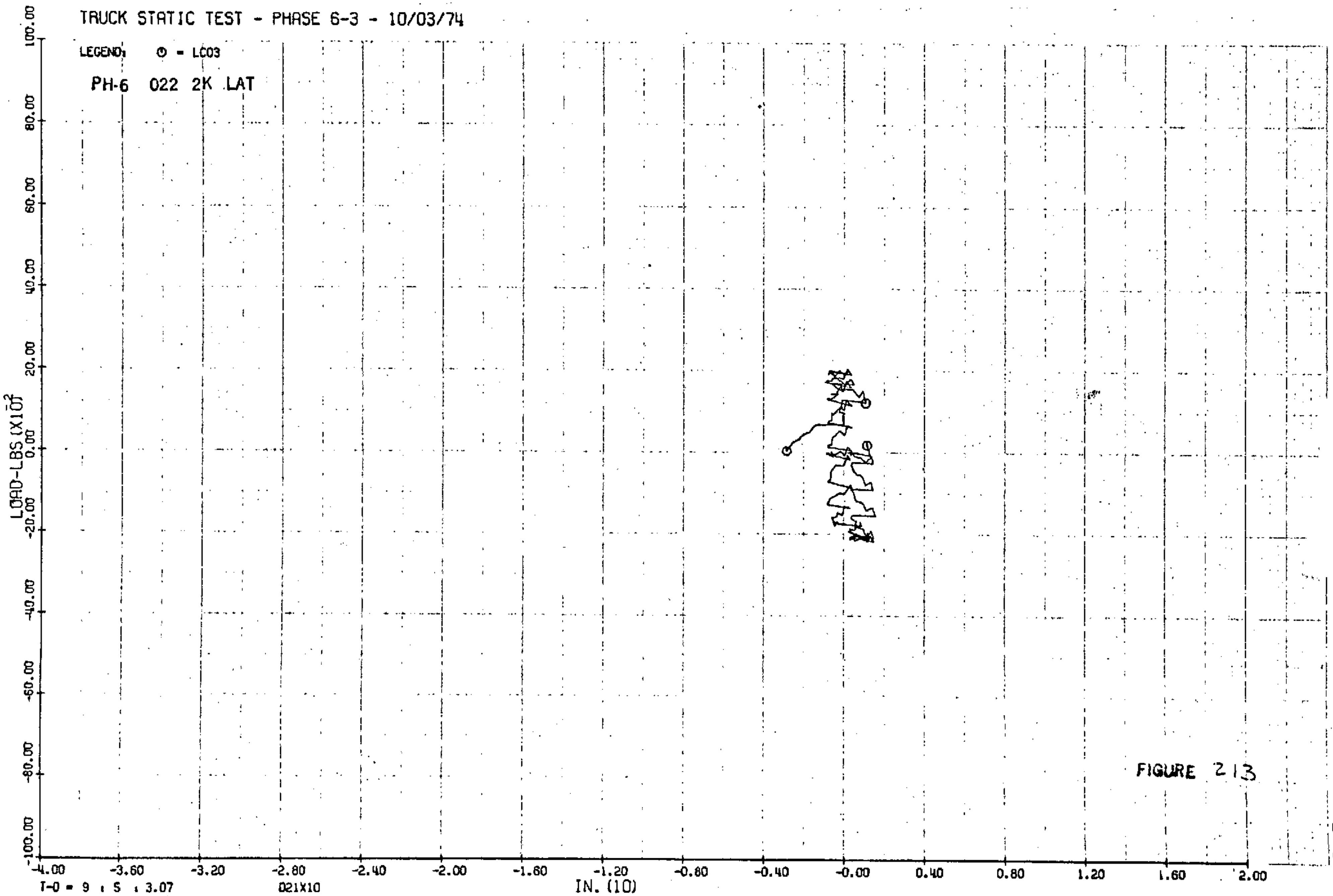

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 2K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
IN. (10)
T-0 = 9 ; S ; 3.07
021X10

FIGURE 213

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74

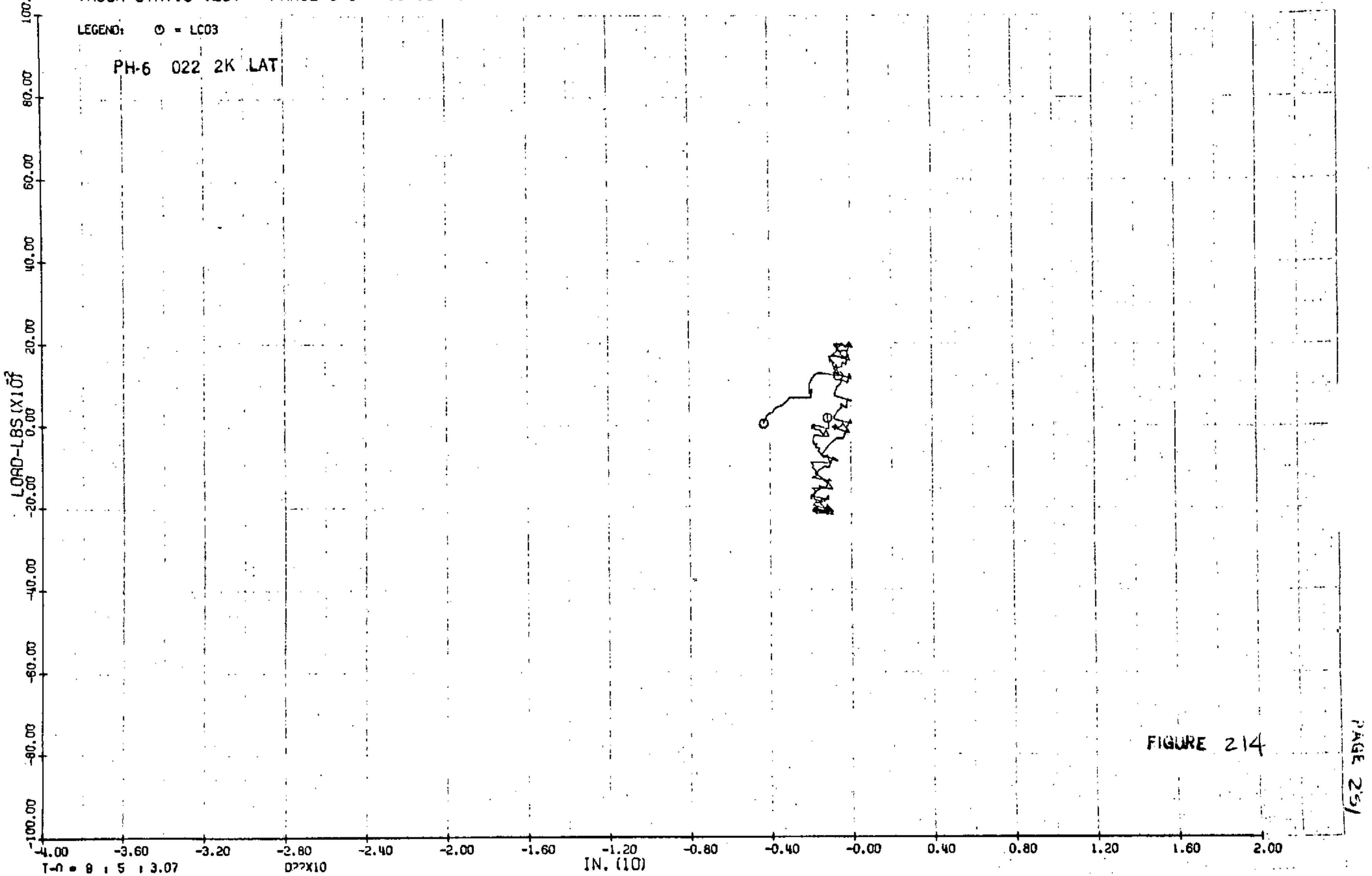


FIGURE 214

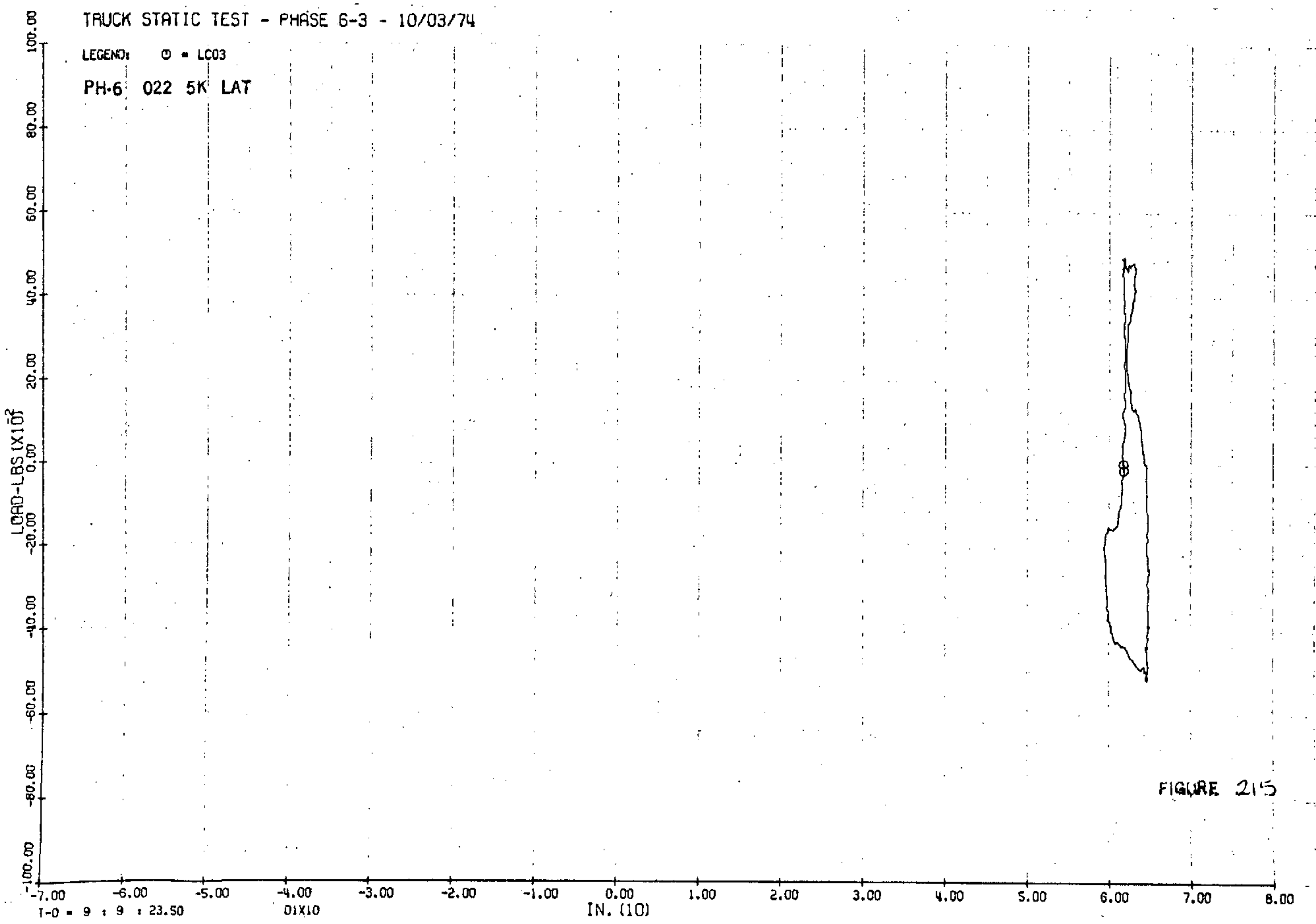

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊕ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
D1X10
T-0 = 9 : 9 : 23.50

FIGURE 215

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74

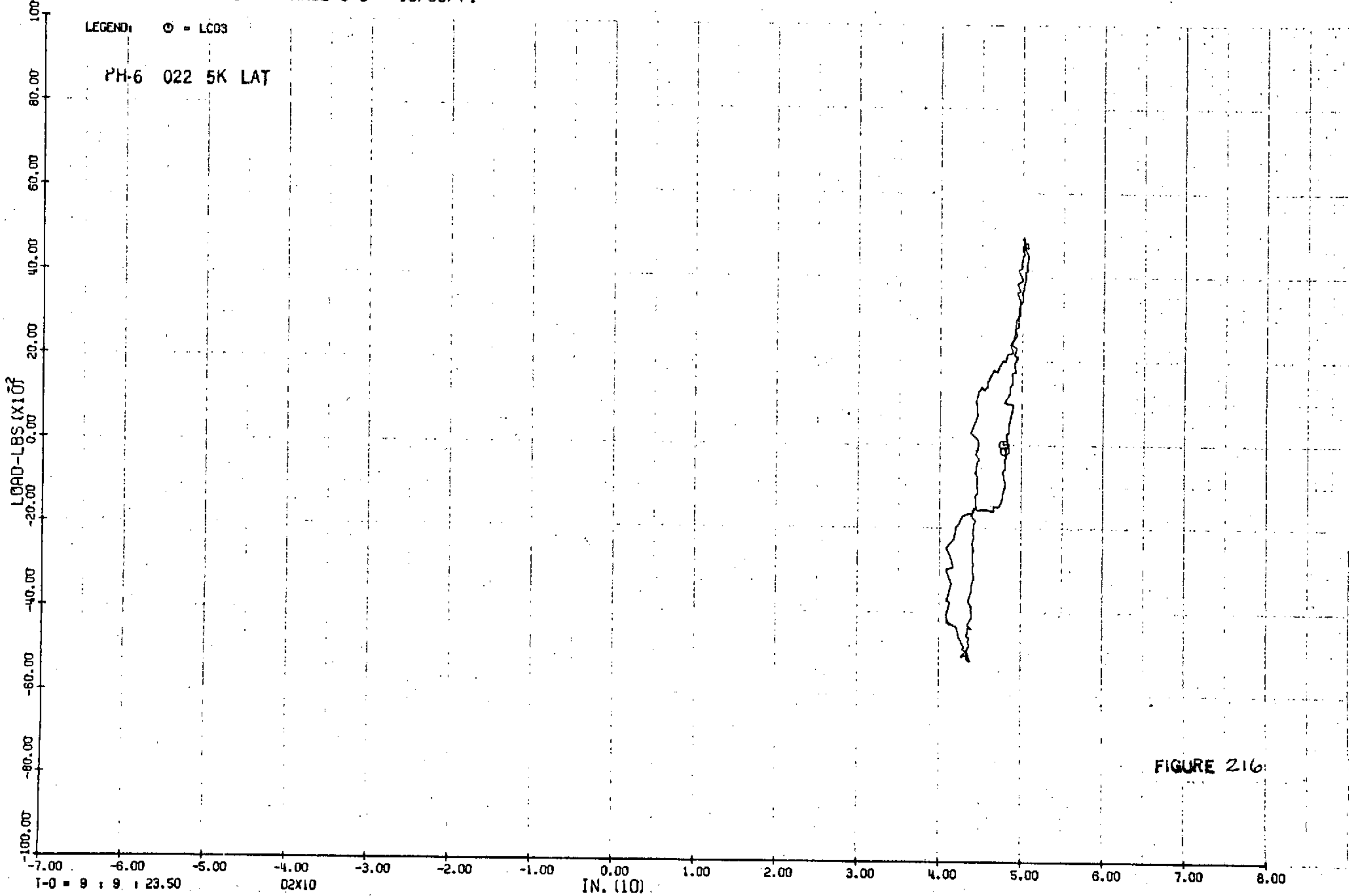
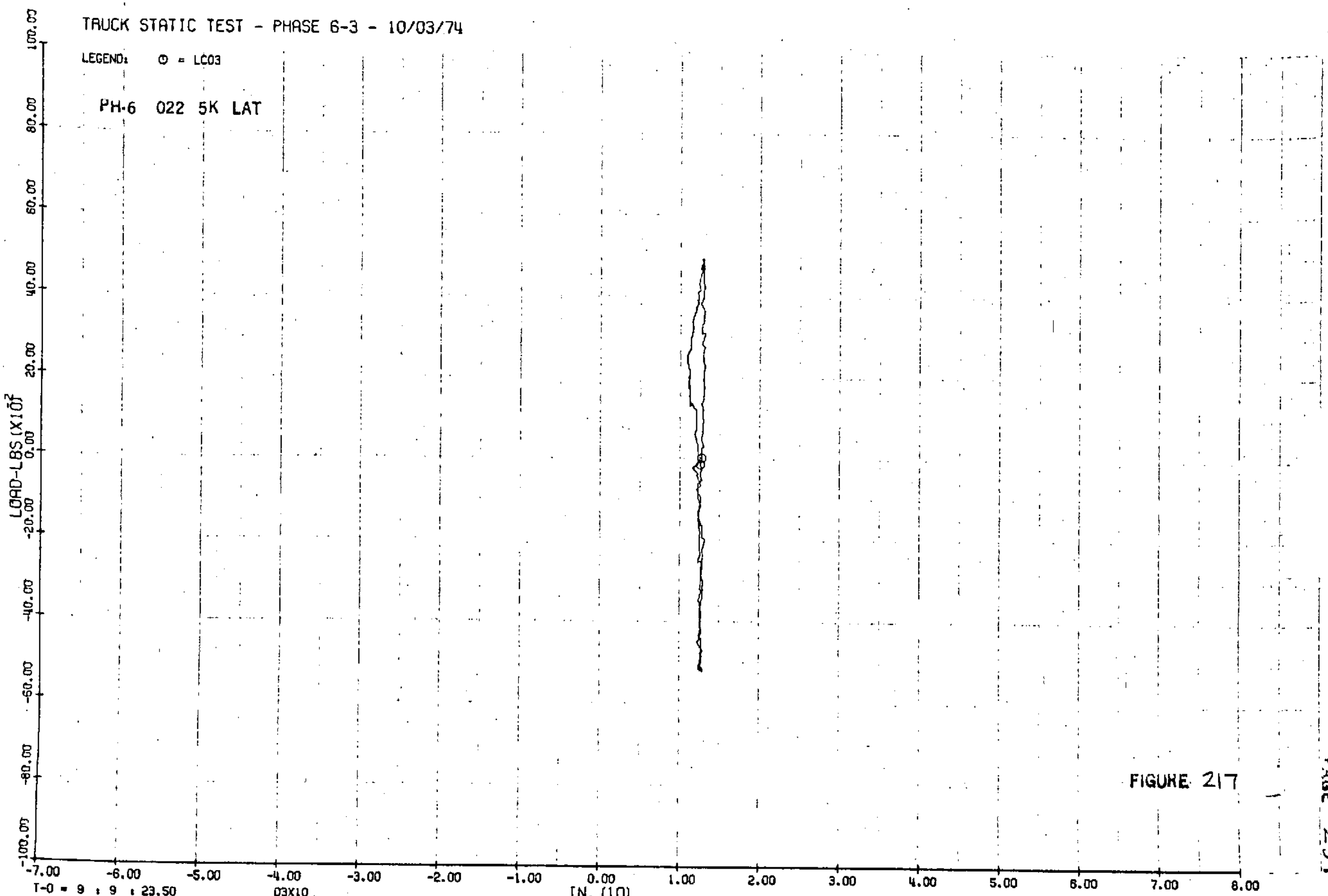


FIGURE 216



TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10^{2})
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 9 : 9 : 23.50
03X10

FIGURE 217

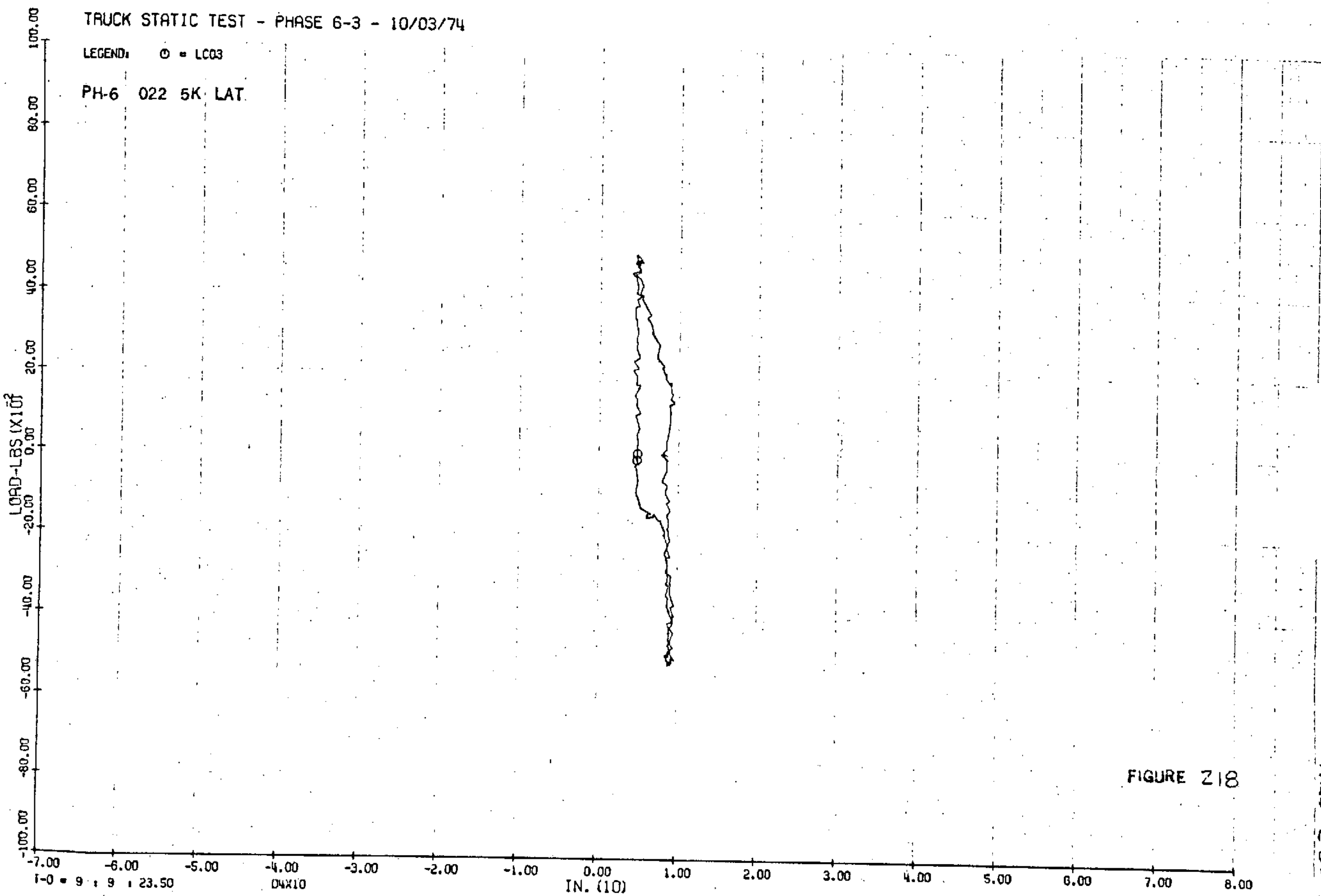

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-7.00
-6.00
-5.00
-4.00
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
IN. (10)
T-0 = 9 : 9 : 23.50
D4X10

FIGURE 218

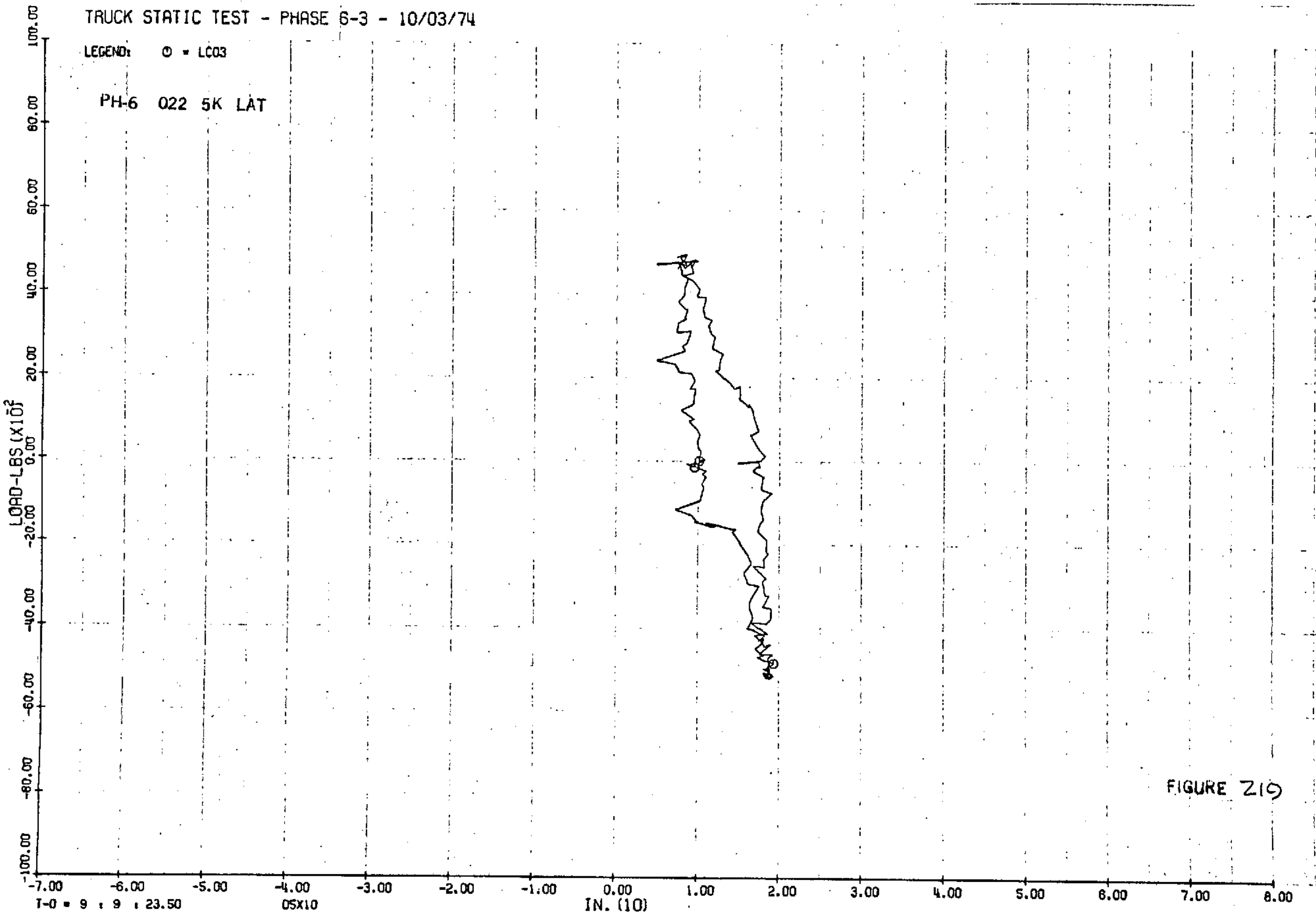


FIGURE 219

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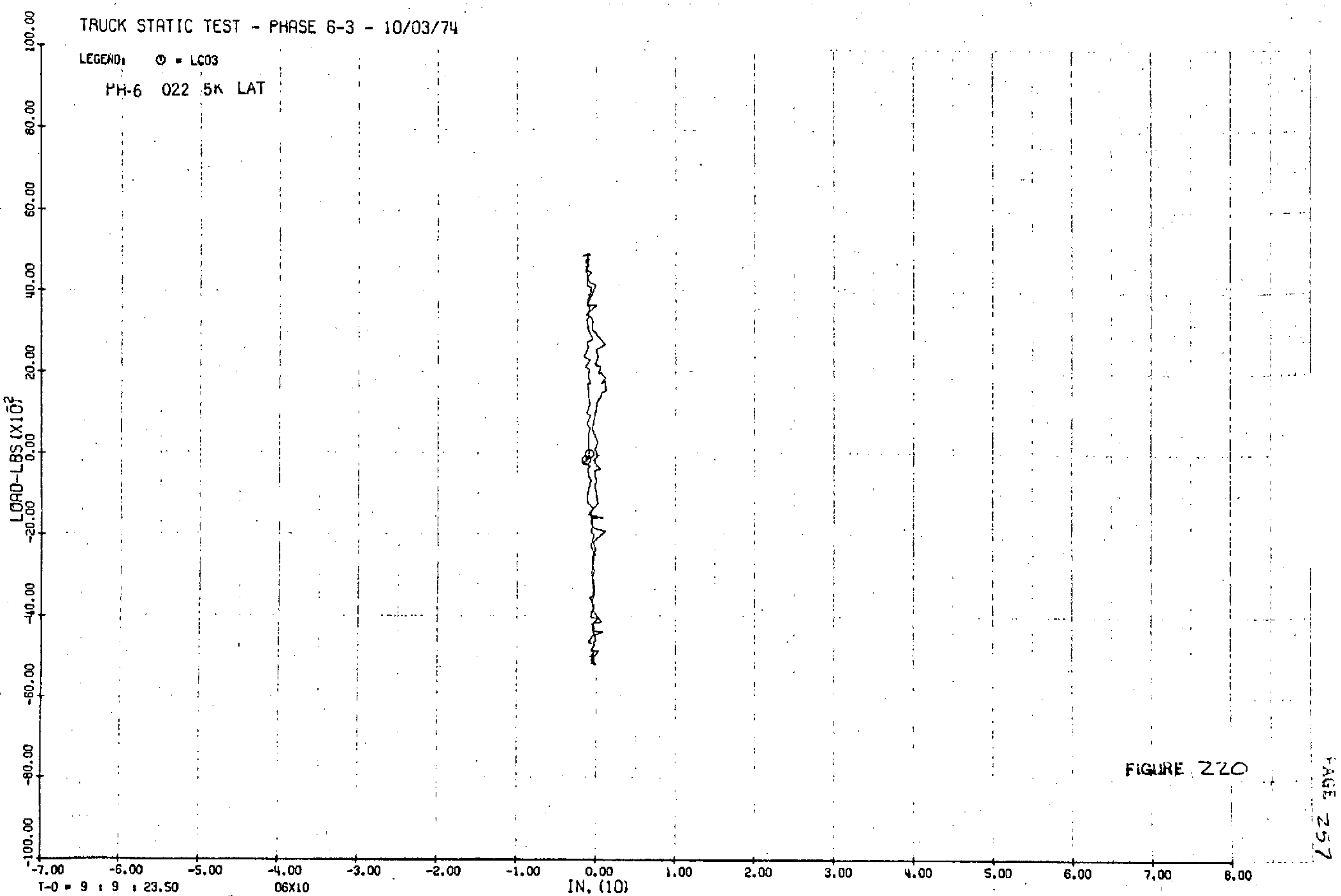

FIGURE 220

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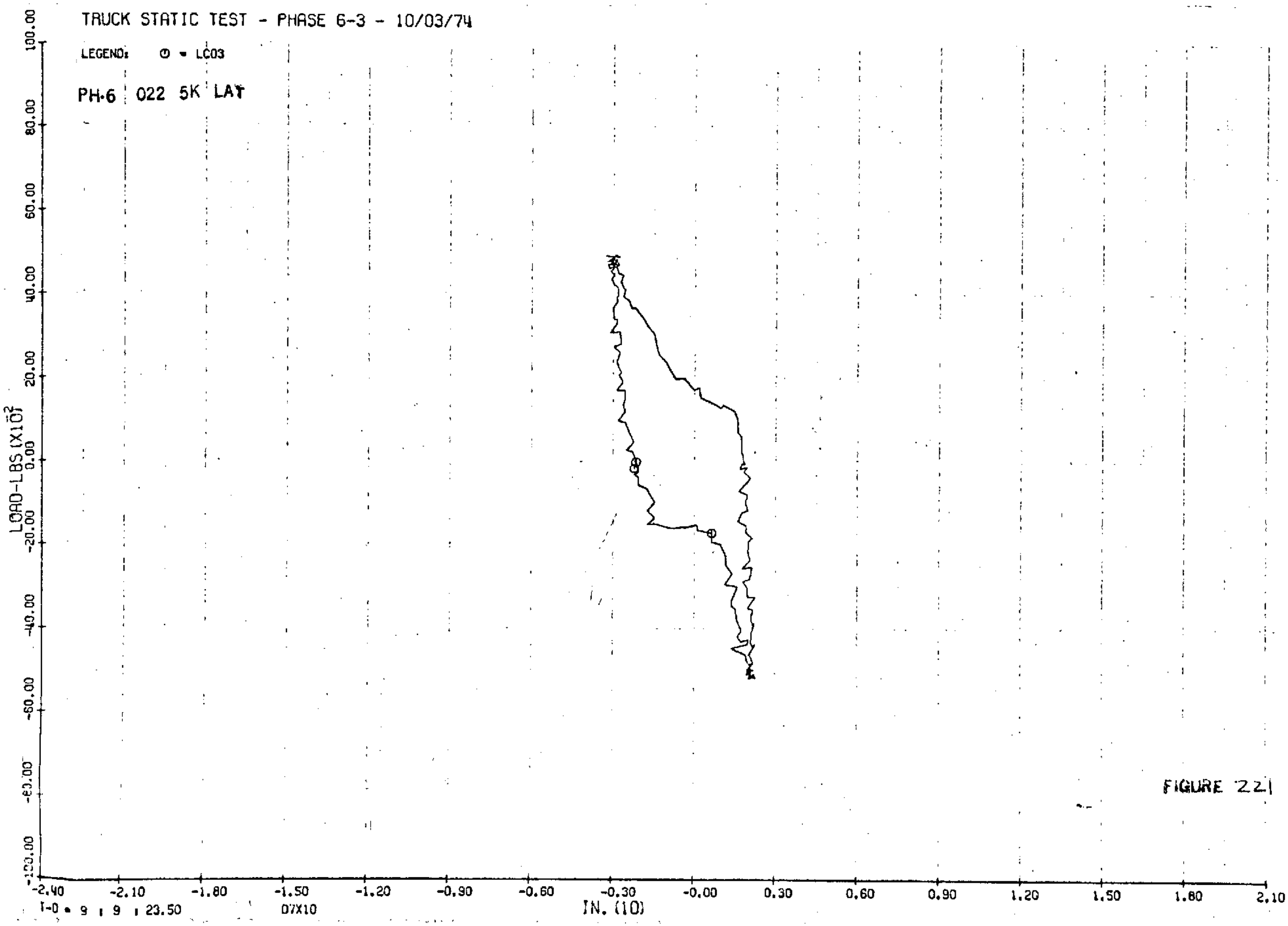

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊕ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-2.40
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
IN. (10)
I-0 = 9 ; 9 ; 23.50
07X10

FIGURE 221

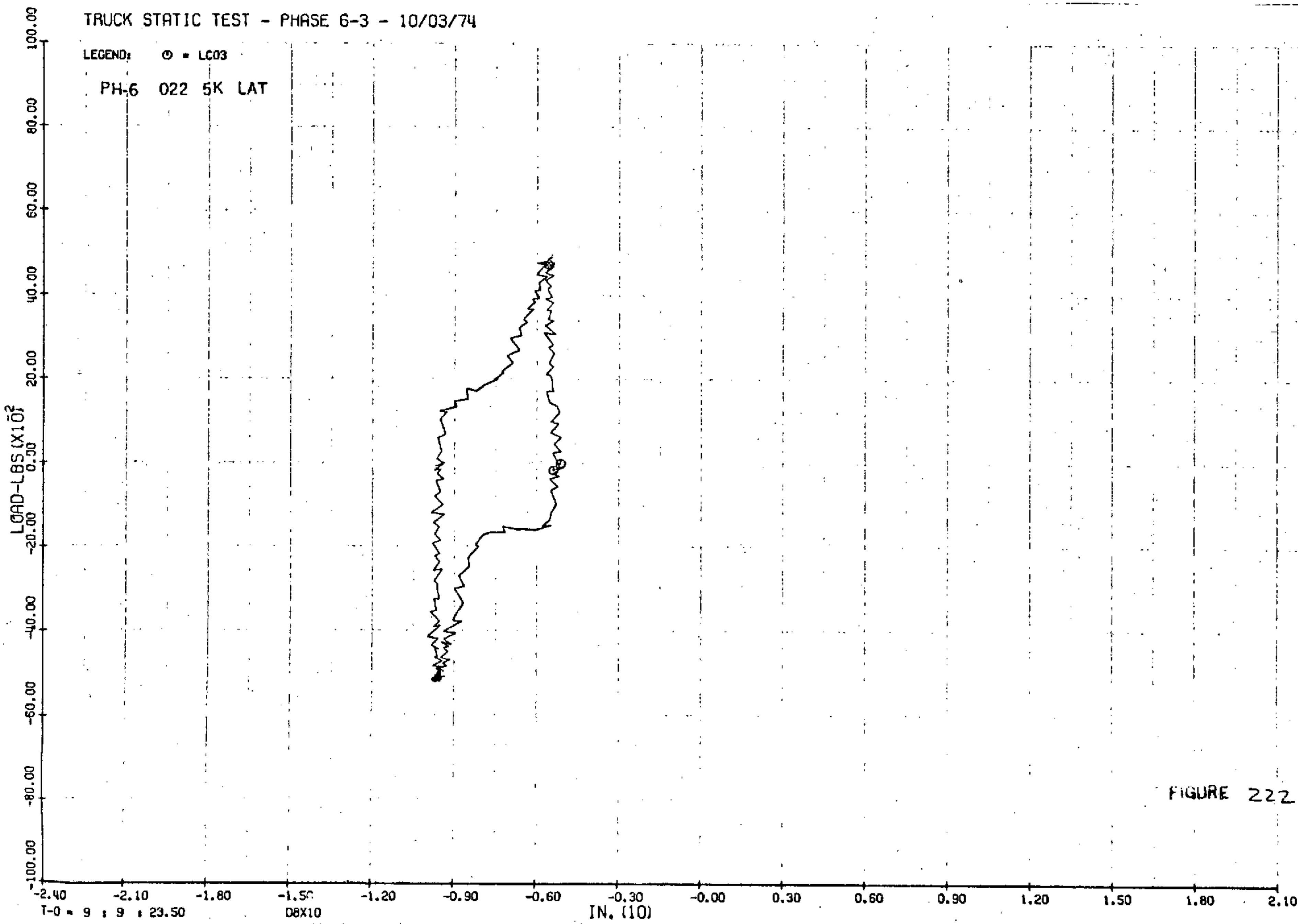

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-2.40
-2.10
-1.80
-1.50
-1.20
-0.90
-0.60
-0.30
-0.00
0.30
0.60
0.90
1.20
1.50
1.80
2.10
IN. (10)
T-0 = 9 : 9 : 23.50
D8X10

FIGURE 222

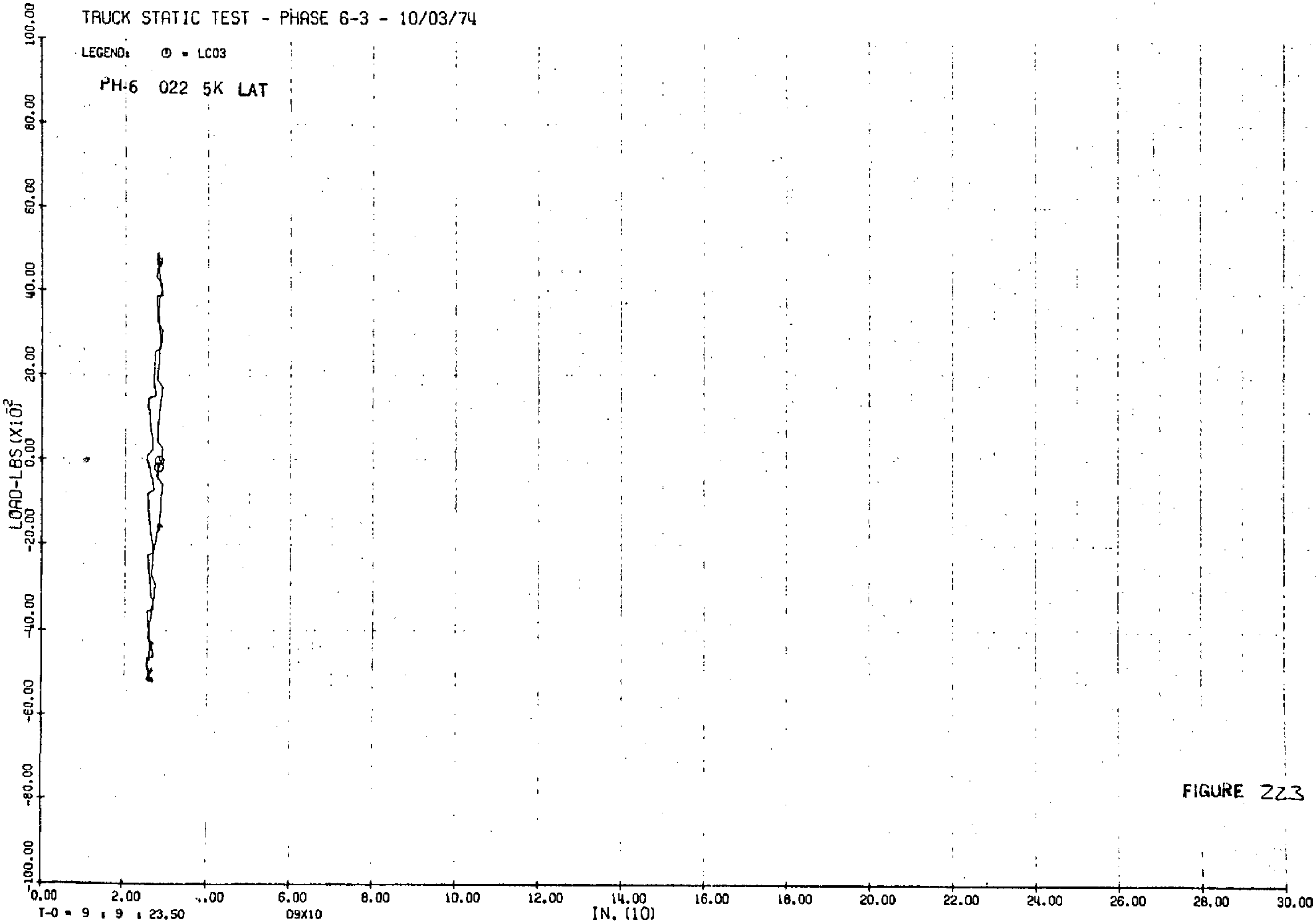

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊕ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 9 : 9 : 23.50
09X10

FIGURE 223

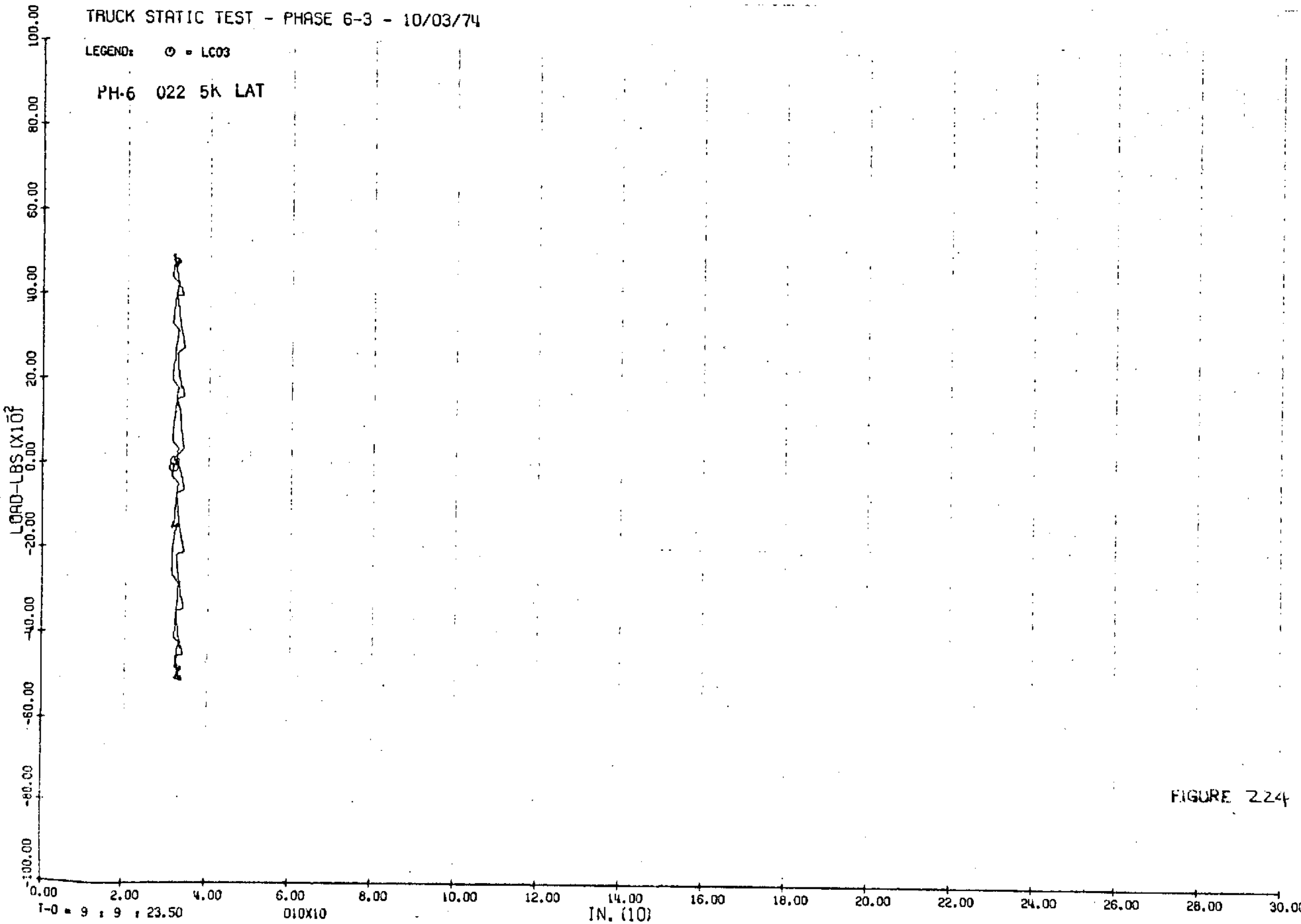
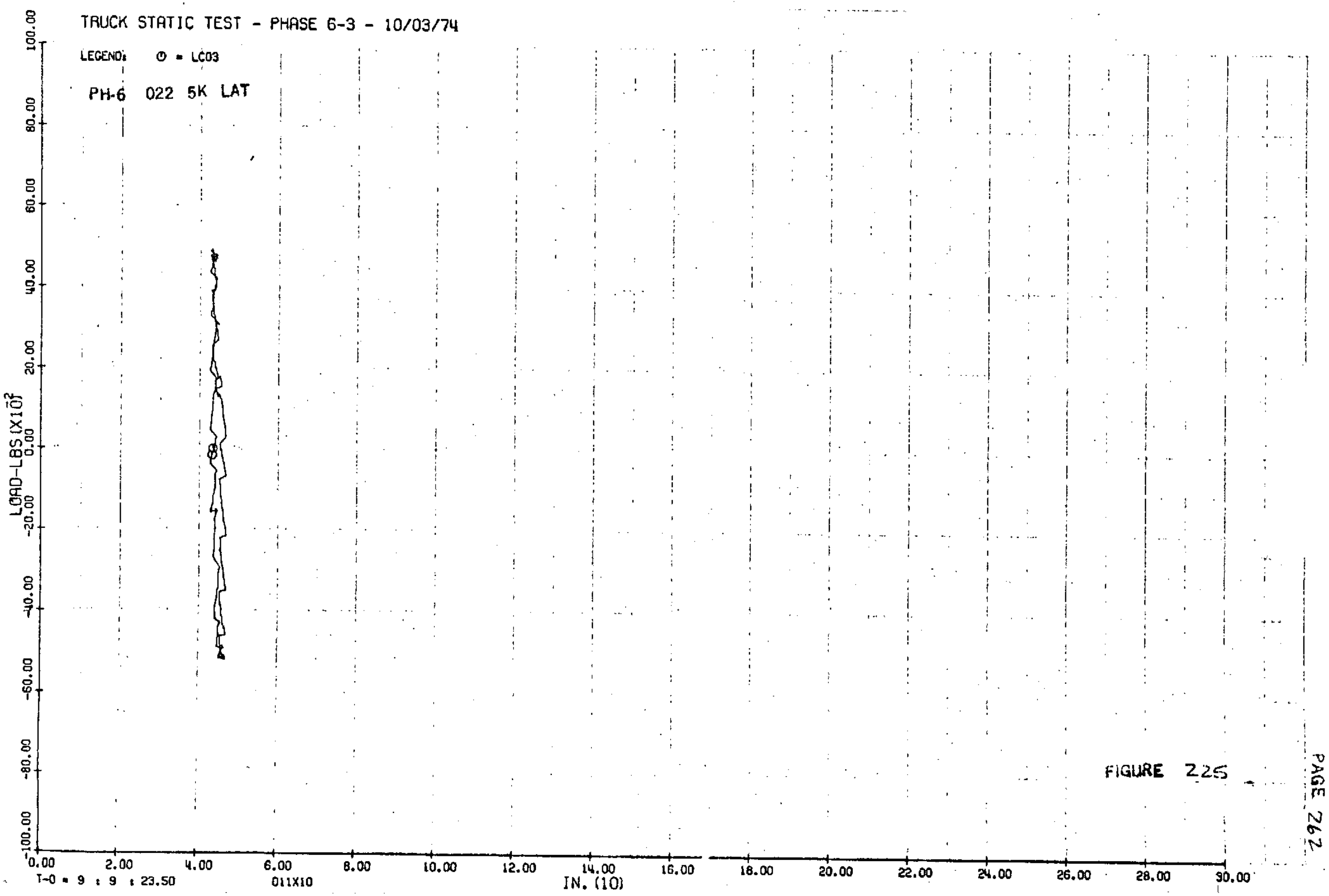

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 9 : 9 : 23.50
010X10

FIGURE 224



TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 9 : 9 : 23.50
011X10

FIGURE 225

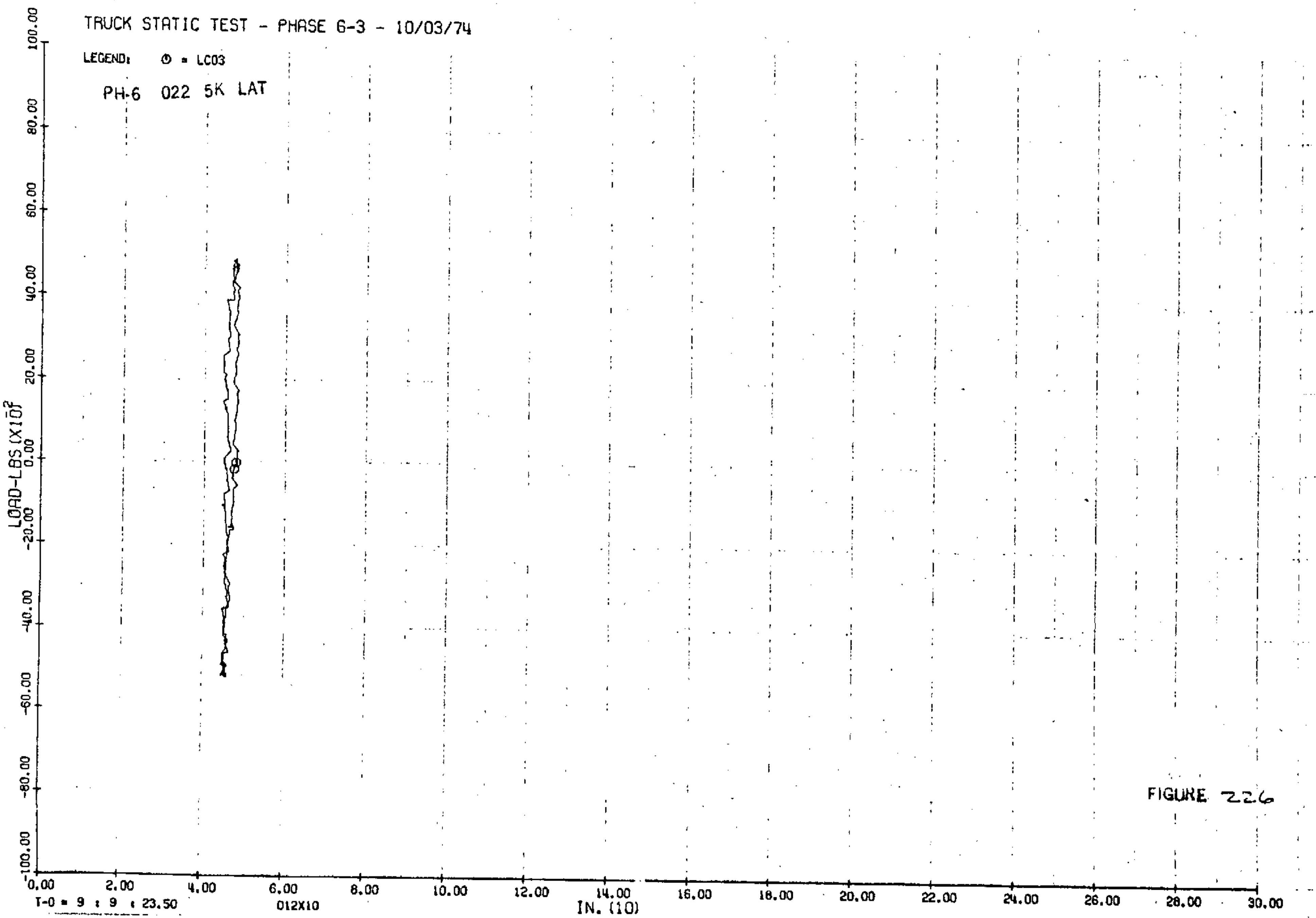
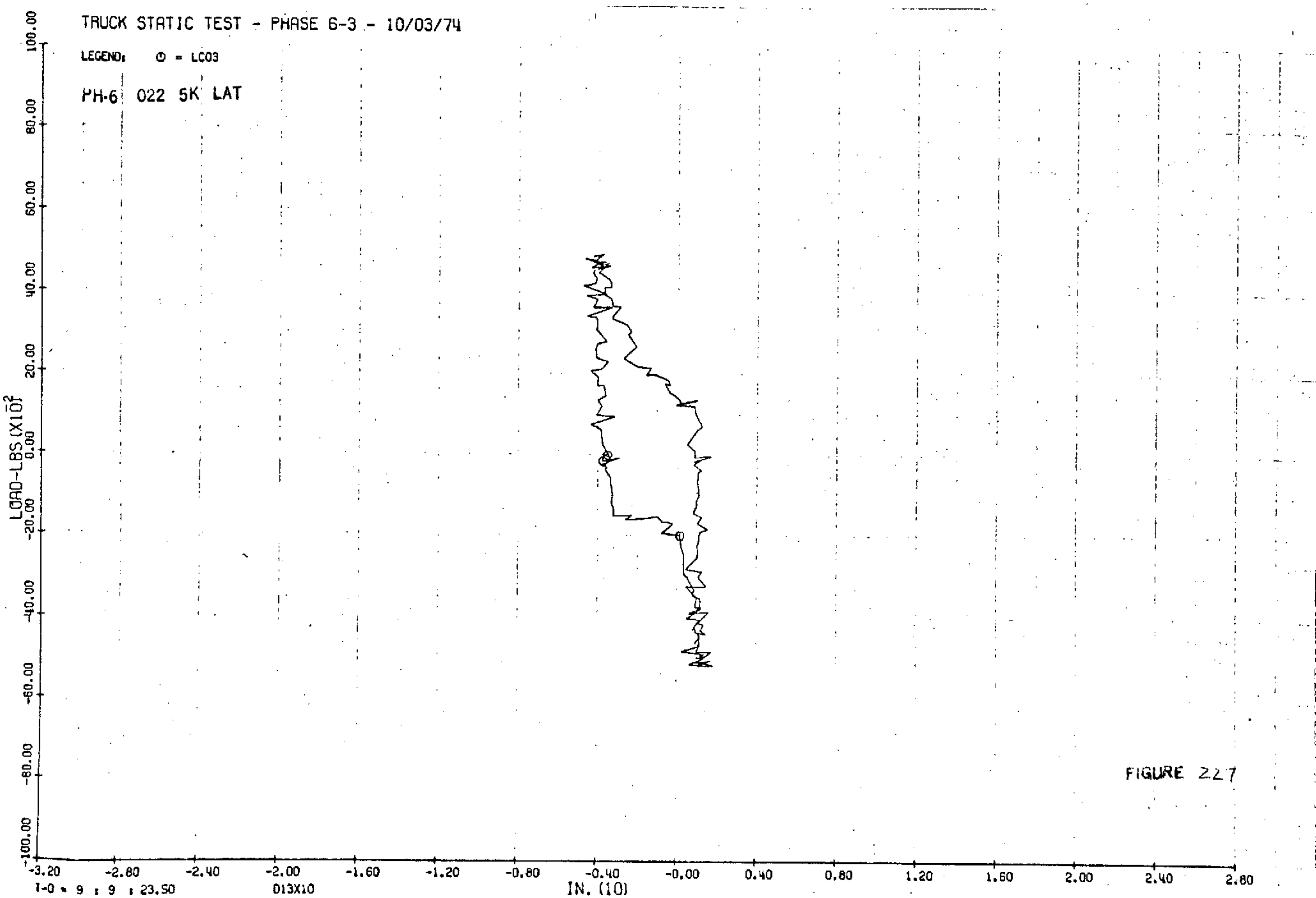
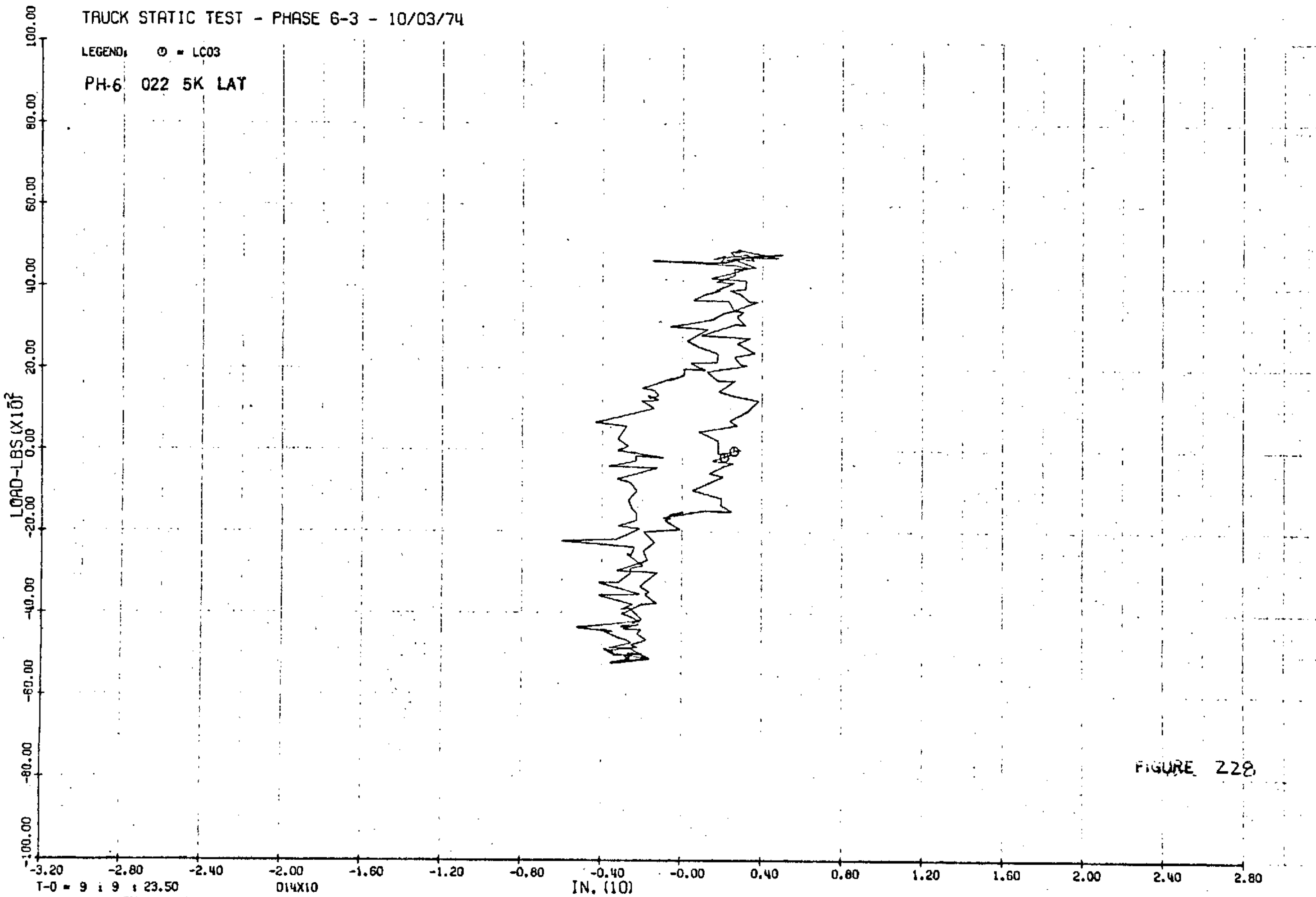

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊕ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
30.00
IN. (10)
T-0 = 9 : 9 : 23.50
012X10

FIGURE 226



TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10^2)
IN. (10)
I-0 = 9 : 9 : 23.50
013X10

FIGURE 227


TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊕ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
2.40
2.80
T-0 = 9 : 9 : 23.50
D14X10
IN. (10)
FIGURE 228

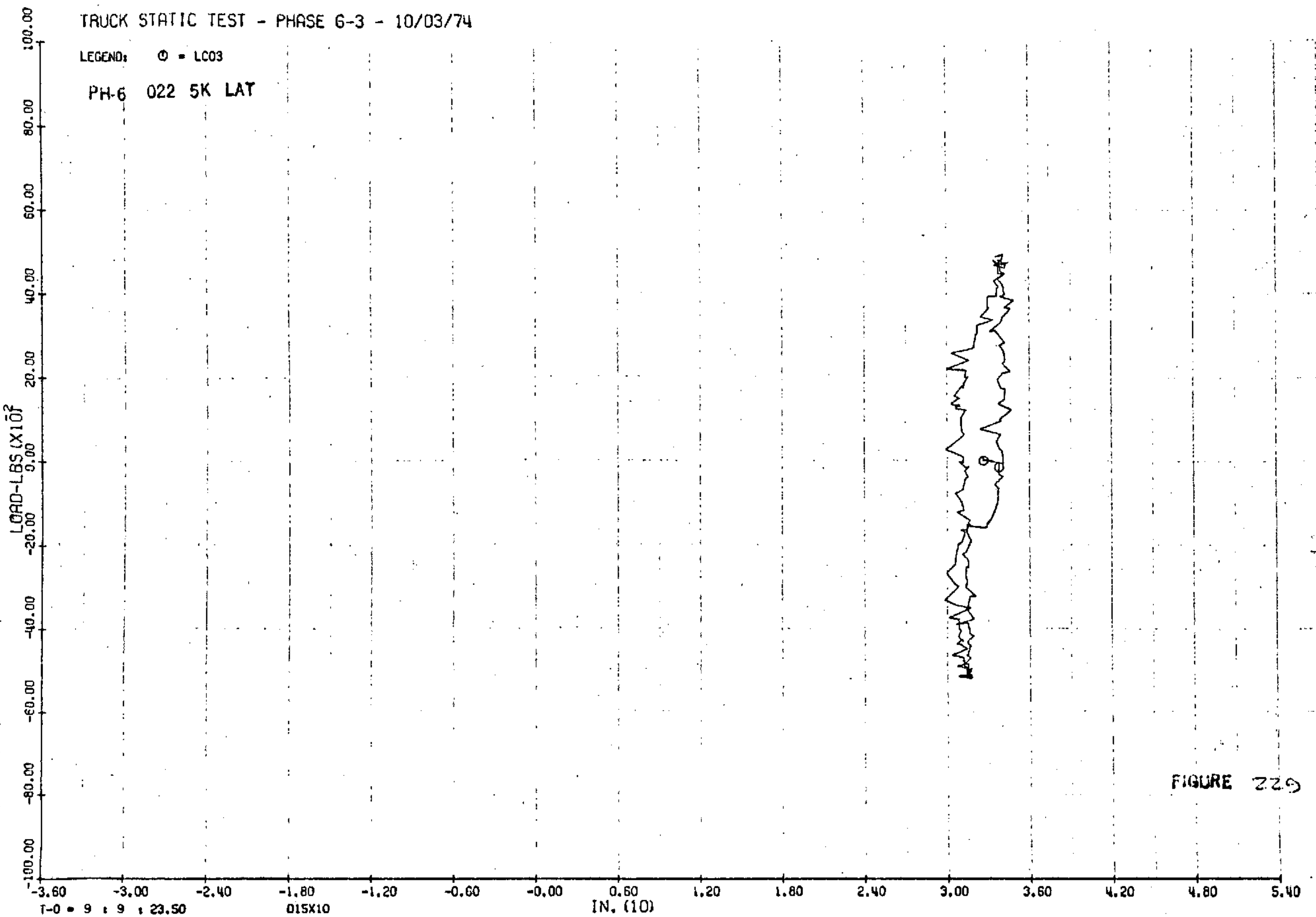

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10^2)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
5.40
IN. (10)
T-0 = 9 : 9 : 23.50
015X10

FIGURE 229

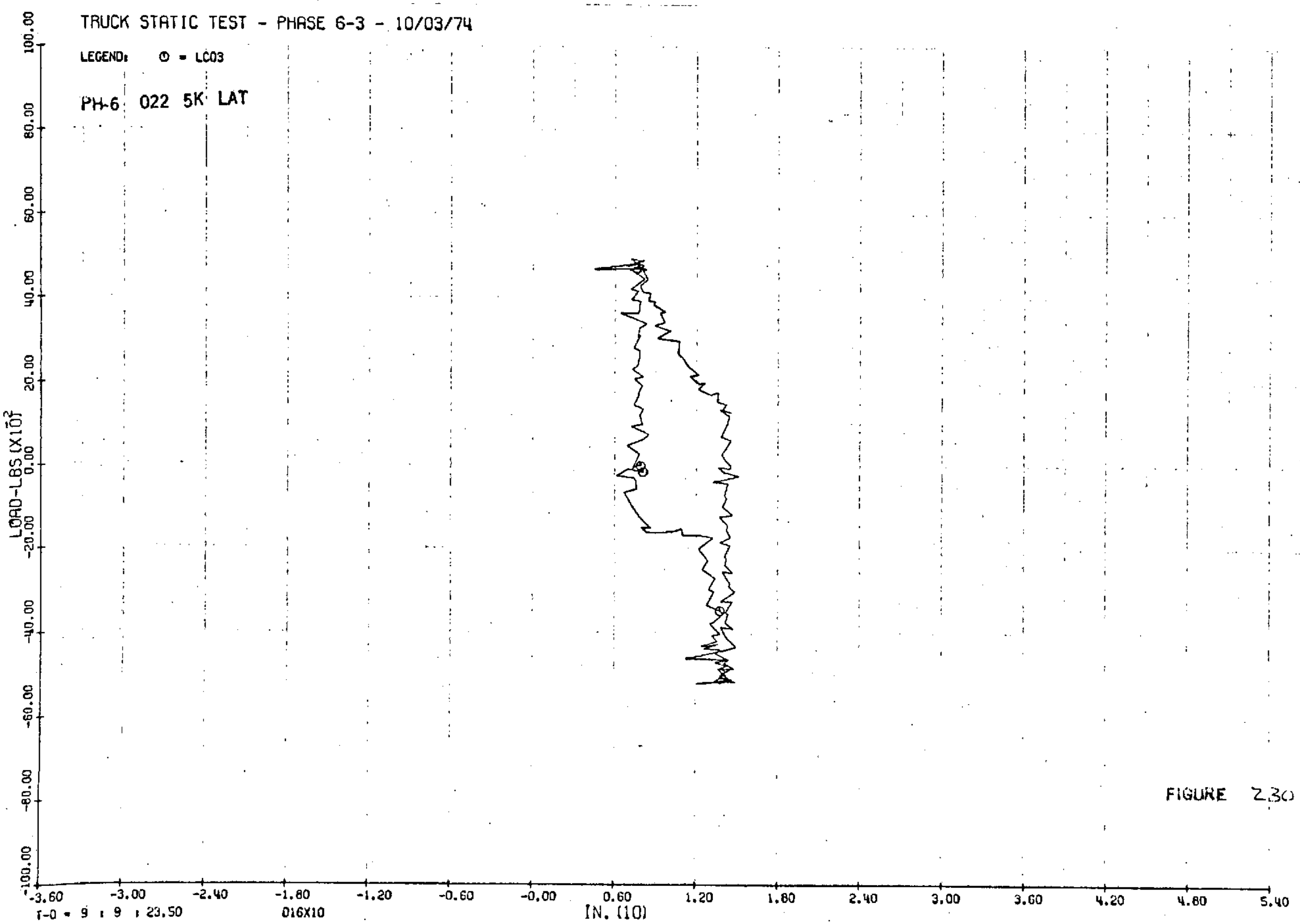

TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10^{2})
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-3.60
-3.00
-2.40
-1.80
-1.20
-0.60
-0.00
0.60
1.20
1.80
2.40
3.00
3.60
4.20
4.80
5.40
IN. (10)
T-0 = 9 : 9 : 23.50
016X10

FIGURE 2.30

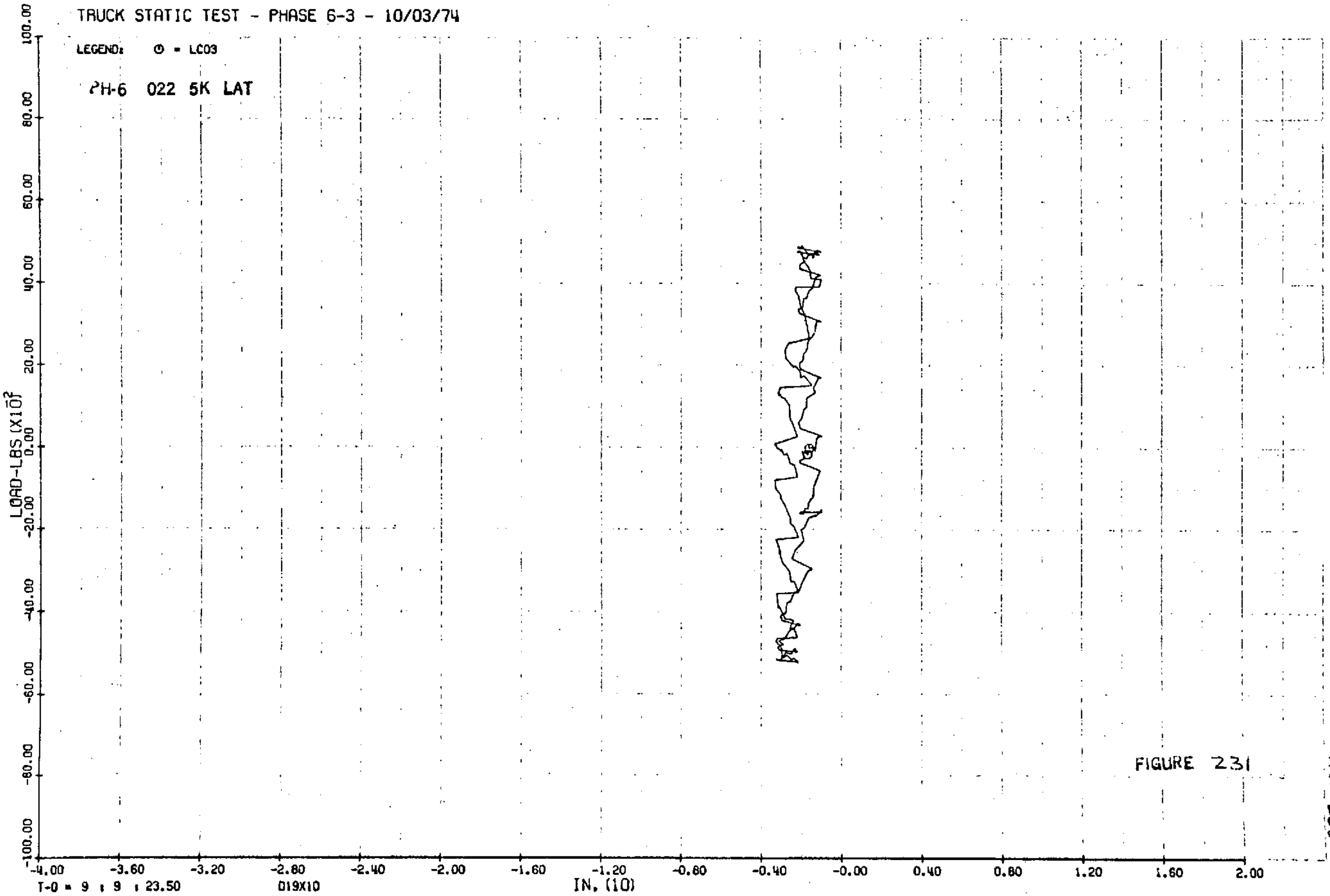


FIGURE 231

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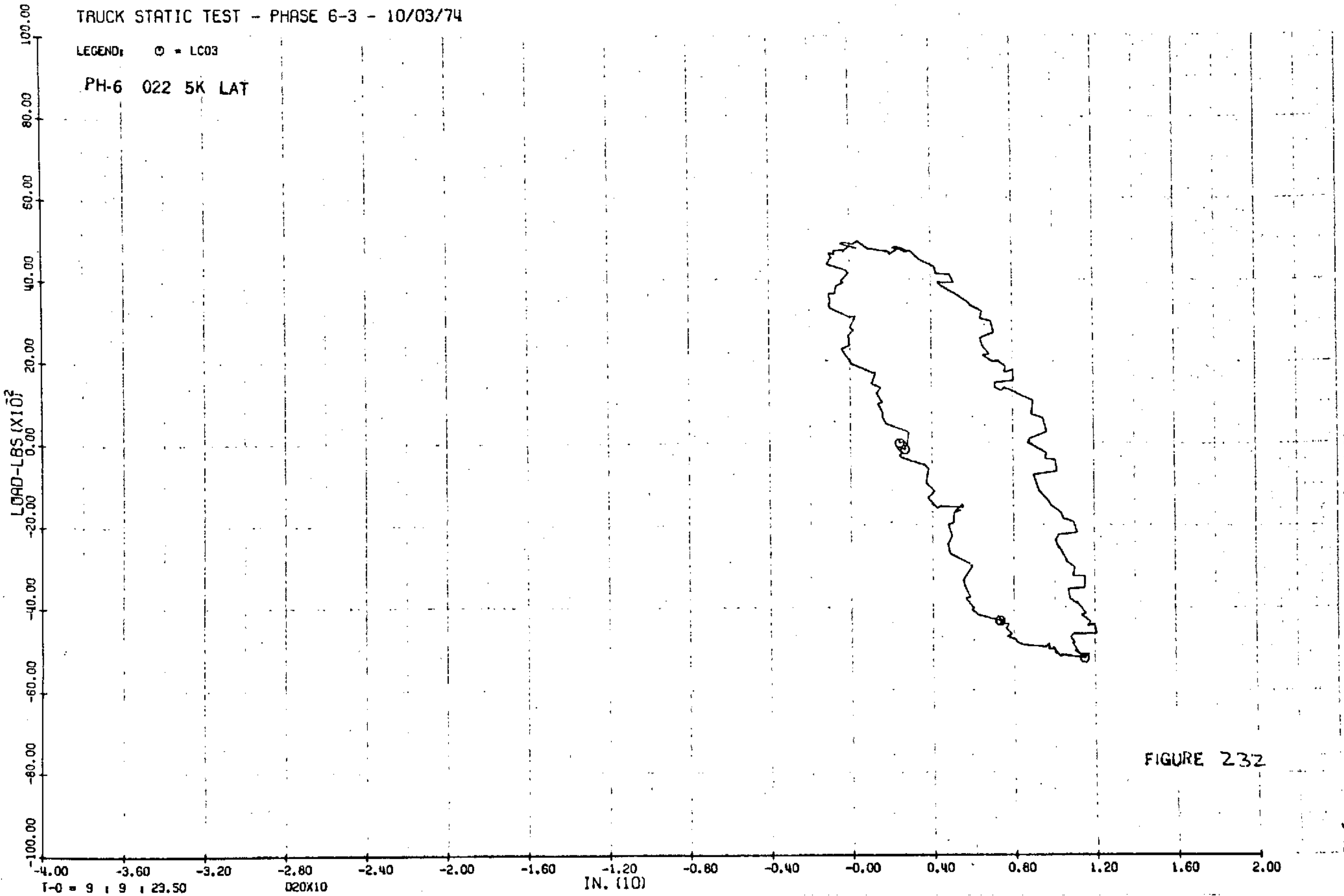

FIGURE 232

TR-1315-74

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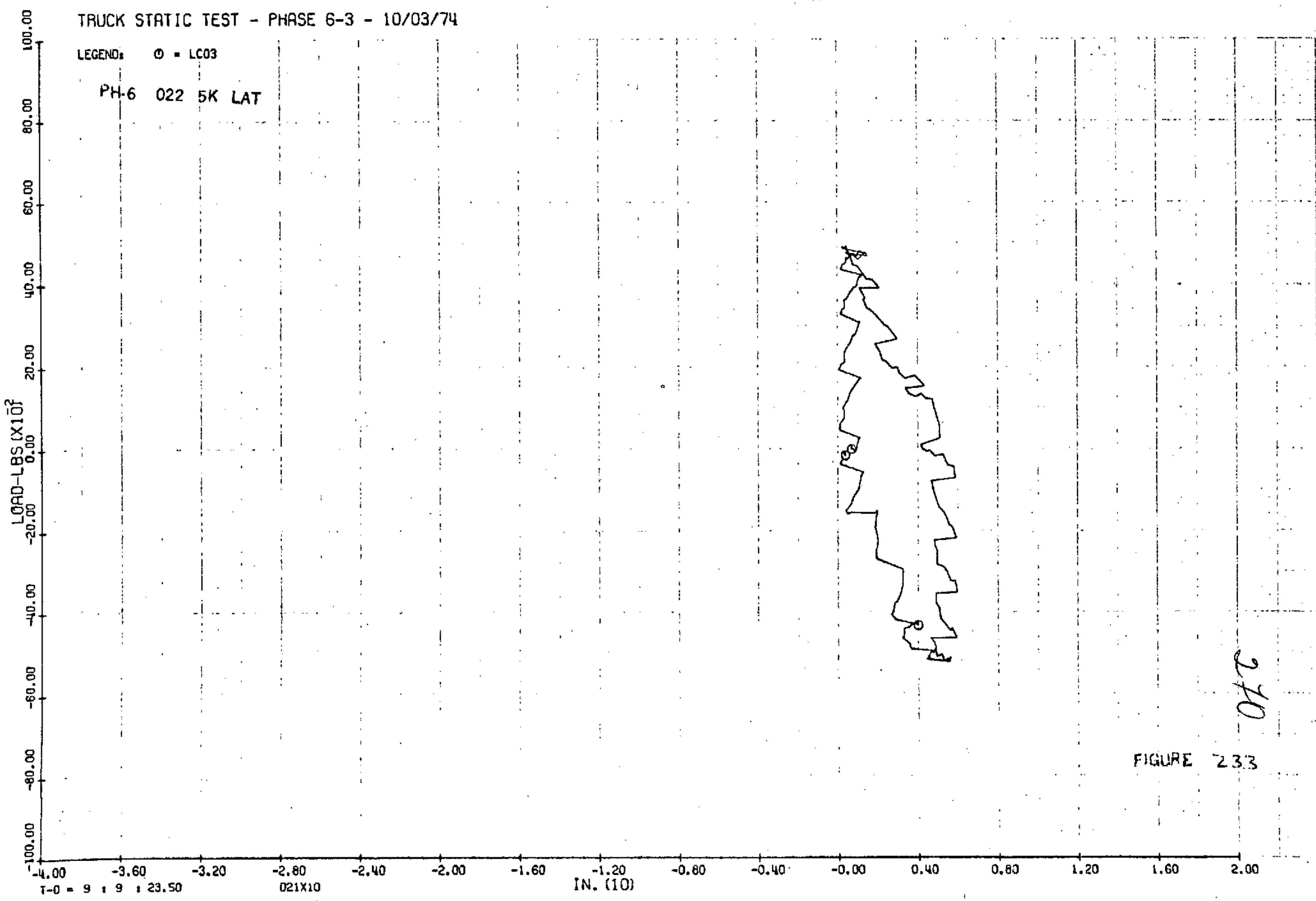
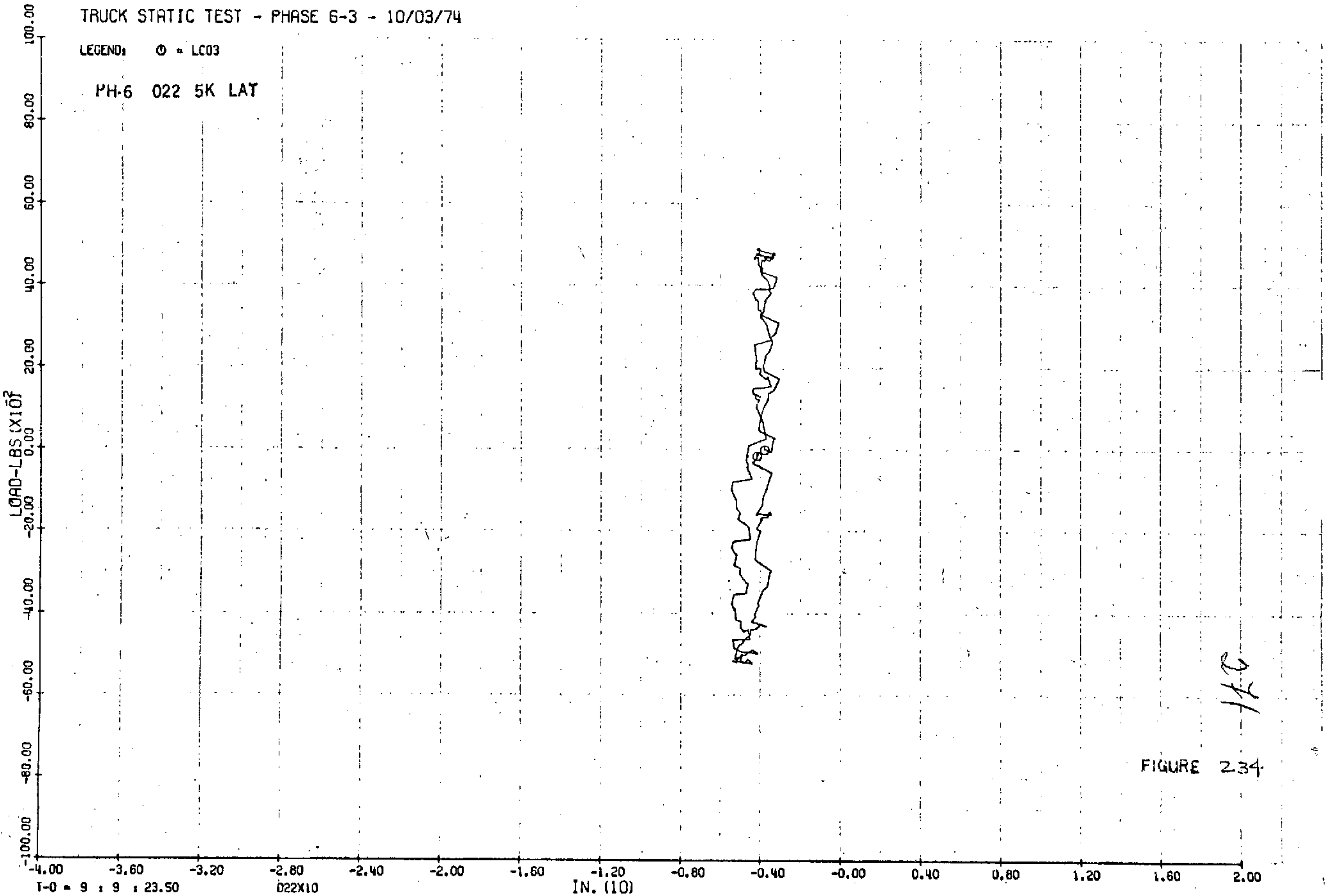


270

FIGURE 233



TRUCK STATIC TEST - PHASE 6-3 - 10/03/74
LEGEND: ⊙ = LC03
PH-6 022 5K LAT
LOAD-LBS (X10²)
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
-4.00
-3.60
-3.20
-2.80
-2.40
-2.00
-1.60
-1.20
-0.80
-0.40
-0.00
0.40
0.80
1.20
1.60
2.00
IN. (10)
T-0 = 9 : 9 : 23.50
022X10

FIGURE 2.34

6.0 CONCLUSIONS

The data collected during these series of tests are sufficient to describe the joint slop, friction and stiffness of the ASF 11 ride truck assembly.

A general observation that can be made is that as the vertical loading on the ride truck assembly was increased, the resulting relative deflections between the components decreased.

APPENDIX A

TEST PROCEDURE

MCR-74-436

TRACK-TRAIN

DYNAMIC ANALYSIS

AND TEST PROGRAM

LOAD-DEFLECTION TESTING

OF RIDE CONTROL TRUCK

PREPARED BY:

A. G. Nemes

A. G. Nemes
Test Engineer

APPROVED:

P.W. Abbott

P. W. Abbott
Technical Director

R. L. Lyon
Unit Head
Structures Laboratory

PW Abbott for

G. Morosow
Program Manager

R. A. Hawey for

D. A. Clark
Personnel Safety

TABLE OF CONTENTS

1.0 DESCRIPTION OF TEST

1.1 Test Objective - The basic objective of this test is to define the joint free play, sliding friction, system flexibility, and linear and non-linear characteristics of an ASF 11 ride truck assembly. Ride truck assembly load and deflection characteristics as well as friction loss characteristics of the body center plate to bolster interface will be determined.

1.2 Test Specimens - The test specimen is 2 ride truck assembly with 6 x 11 roller bearings. The truck assembly is GFP hardware that will be tested in six different configurations to obtain load and deflection data.

The truck assembly will be tested in the as received condition except that the brake beam and linkage assemblies will be removed.

1.3 Test Setup and Test Loads - The ride truck assembly test setup is defined on MMC drawing LAB 1007045. Two separate test fixtures are required to conduct the six phases of testing.

Test phases one through five are conducted on test fixture LAB 1007045-009. This fixture fixes the truck assembly so that the wheel and axles will not move during the loading phases. Only the side frames and bolster are allowed to deflect. The hopper car loading (vertical preload) is introduced into the bolster utilizing a load fitting incorporating a Pullman Standard body center plate and a 200,000 pound hydraulic jack. The maximum load will be only 100,000 pounds and the load will be monitored with a 200,000 pound load cell. Lateral and moment loading is provided by 50,000 pound hydraulic jacks separately or in pairs depending on the loading phase. The maximum lateral and moment load is only 10,000 pounds which is monitored by 20,000 pound load cells. Figure 1 summarizes the test phases one through five.

Test phases six and seven are conducted on test fixture LAB 1007045. For Phase six and seven testing the ride truck assembly is inverted on the test fixture and supported by a column that is topped with the body center plate. The hopper car loading is simulated utilizing two 100,000 pound hydraulic jacks with one jack attached to the center of the wheel axle assembly. BLH 50,000 pound load cells are used in line with the hydraulic jacks to measure the applied vertical forces.

1.3 (Continued)

Phase 6 (Lozenge Mode) lateral loading is produced utilizing two 50,000 pound hydraulic jacks with one jack attached at the end of the wheel/axle assembly. The jacks are positioned so that the line of action will produce racking of the ride truck assembly without any resulting rotation. BLH 20,000 pound load cells are utilized to monitor the hydraulic jack loading. Maximum lateral loading will be 10,000 pounds.

Phase 7 (Friction Test) lateral loading is produced utilizing two 10,000 pound hydraulic jacks with one jack attahced at each end of the bolster. The jacks are positioned so that bolster rotation results when sufficient torque is applied to overcome the friction torque between the body center plate and the bolster cup. But, 50,000 pound load cells are utilized to monitor the hydraulic jack loading. Figure 2 shows the loading directions for phase six and seven testing.

Since the lateral loading and moment producing loading must be cyclic in nature, a servo control system is incorporated. Moog servo control valves with a maximum capacity of 15.0 gal/min are used. The desired sine wave loading signal is generated with a function generator with the load amplitude and frequency set. The Load cells provide feedback for control of the cyclic loading. A second hydraulic pump is added to the setup and a pressure reservoir and an accumulator are also required. Figure 3 gives the hydraulic servo system schematic.

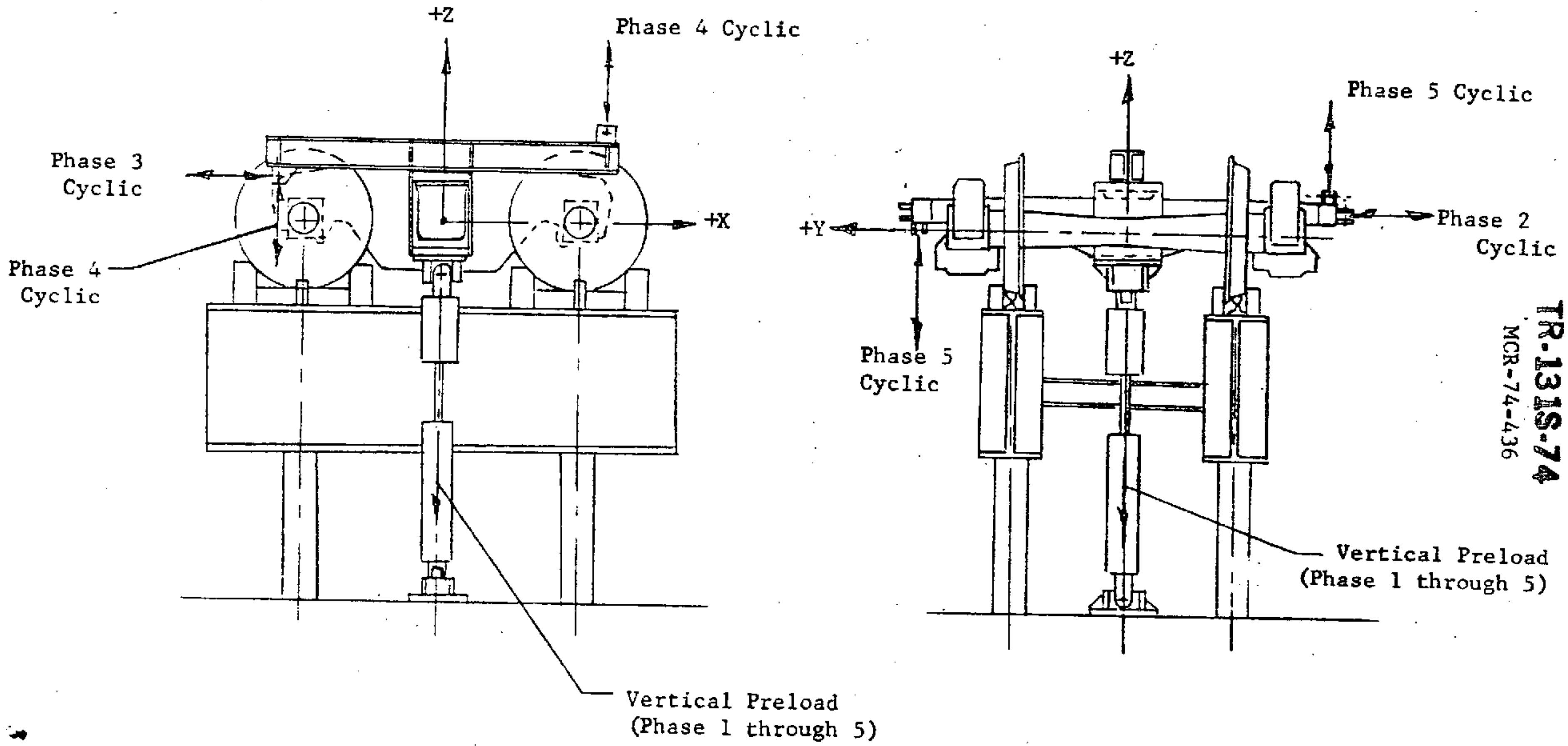
The vertical preload will be varied for all test phases with values of 20,000, 50,000 and 100,000 pounds being applied, and two cyclic loading runs conducted at each preload level. This will result in six load conditions for each phase of testing.

1.4 Test Instrumentation - Linear variable deflection transducers (LVDT) and structures lab deflection boxes (SLDB) will be utilized to monitor the various deflections of the truck assembly. Figure 4 summarizes the deflection gage locations while Table 1 defines measurement direction, anticipated range, and relative deflection being measured.

1.4 (Continued)

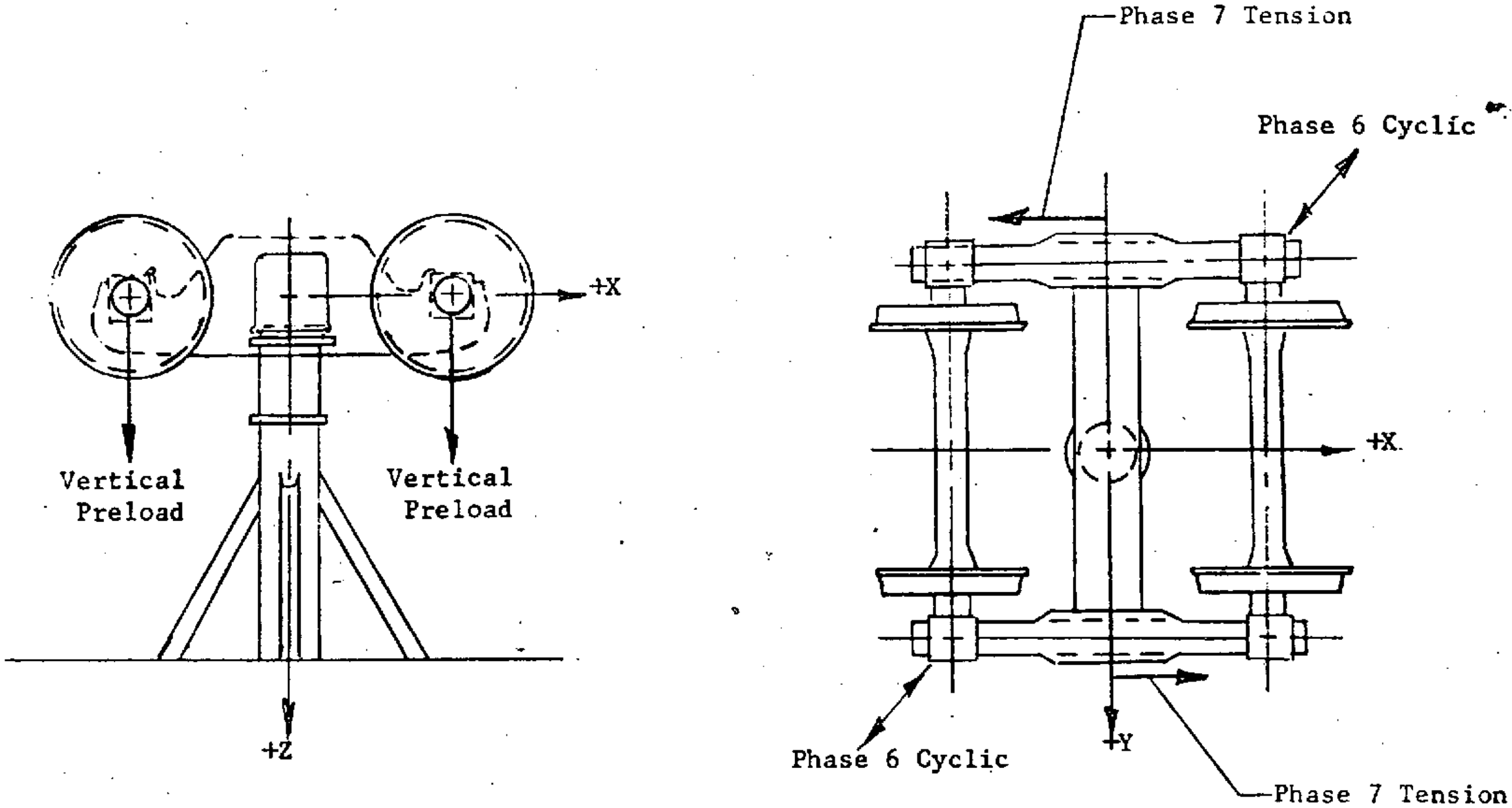
A Leeds and Northrup recorder will be used to provide a continuous polar plot of the vertical preload load line. The lateral and moment load lines will be controlled by a function generator that will be calibrated prior to each testing phase. Two Bristol Recorders will be used as back up data plots for the lateral and moment load lines.

The Central Data Recording IDS unit will be used to record deflection transducer and load cell output data on magnetic tape.



Note: See MMC Drawing LAB-1007045 for details of test setup.

Figure 1. Test Setup — Load Phase 1 Through Phase 5



Note: See MMC Drawing LAB-1007045 for details of test setup.

Figure 2. Test Setup - Load Phase 6 and Phase 7

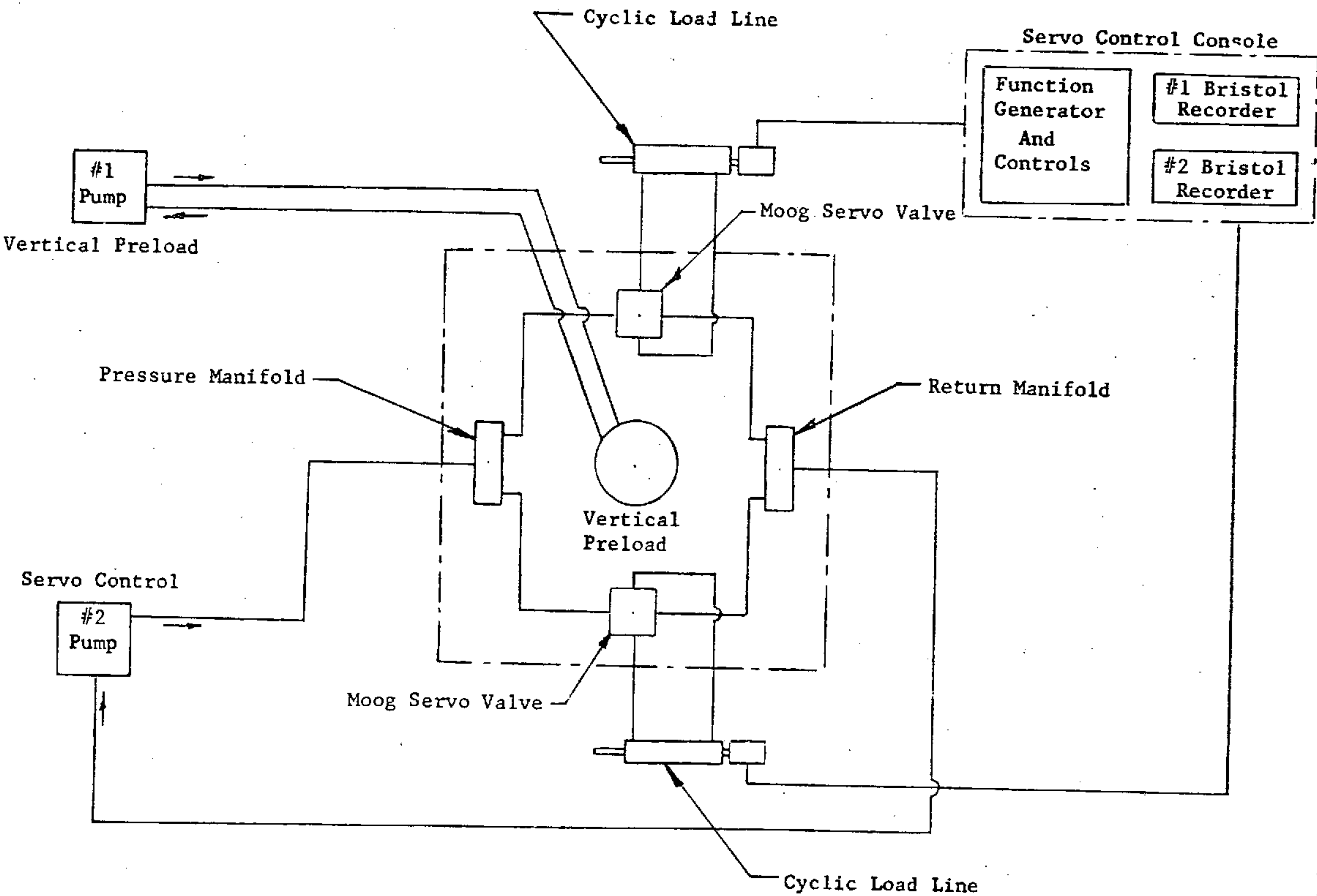


Figure 3. Servo Control and Hydraulic System Schematic

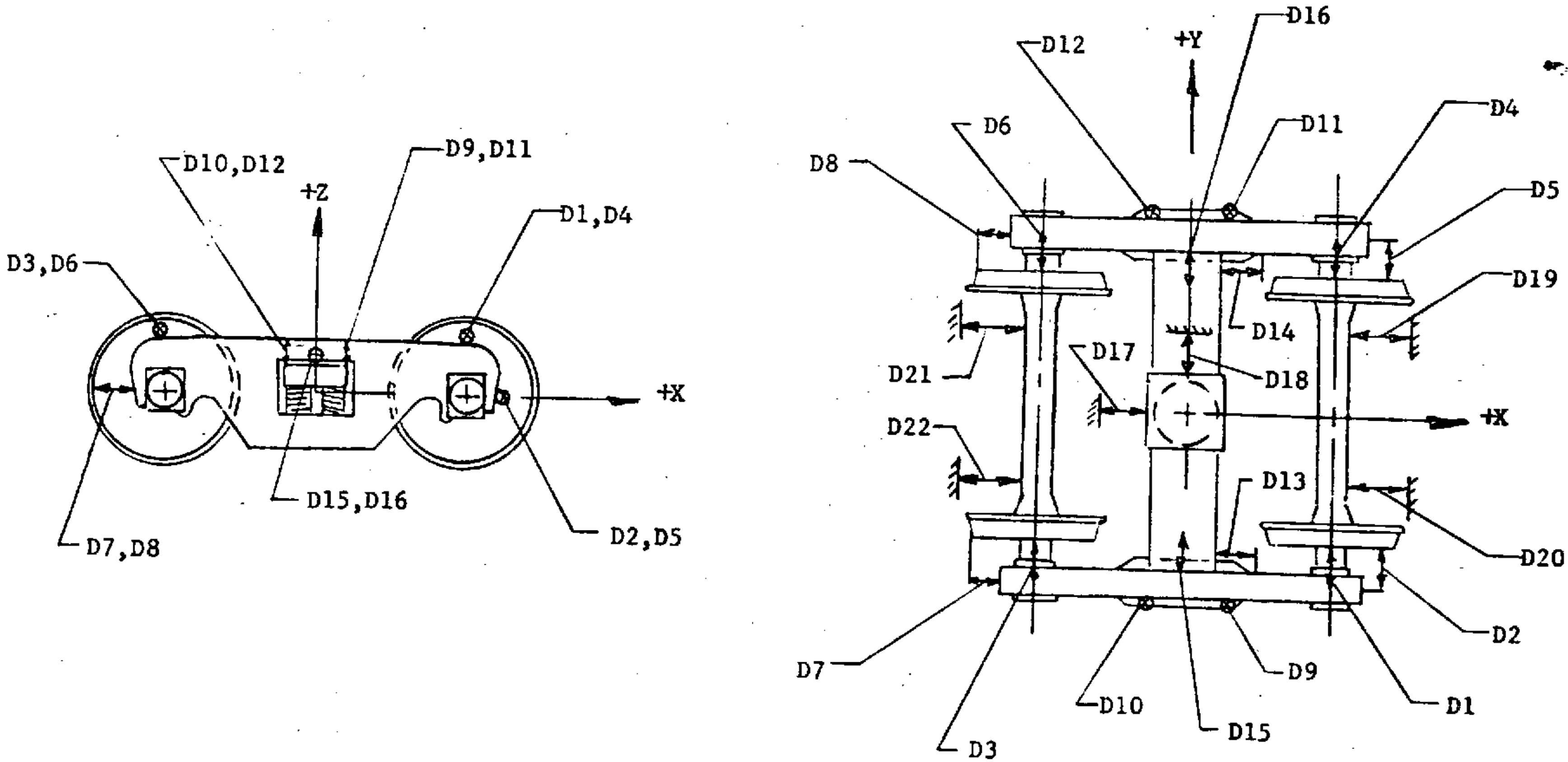


Figure 4. Ride Truck Deflection Transducer Requirements

Table 1. Deflection Transducer Summary (See MMC Drawing LAB1007045, Sh 11 for Phase 7)

GAGE	LOAD PHASE UTILIZED	RANGE/ DIRECTION	DESCRIPTION
D1,D2,D3 D4,D5,D6	1 to 6	± 1.0 Y	Sideframe Relative to Wheel/Axle
D7,D8	1 to 6	± 1.0 X	Sideframe Relative to Wheel/Axle
D9,D10 D11,D12	1 to 6	± 3.0 Z	Bolster Relative to Sideframes
D13,D14	1 to 6	± 1.0 X	Bolster Relative to Sideframes
D15,D16	1 to 6	± 1.0 Y	Bolster Relative to Sideframes
D17	1 to 5	± 1.0 X	Bolster Relative to Ground
D18	1 to 5	± 1.0 Y	Bolster Relative to Ground
D19,D20 D21,D22	6	± 3.0 X	Wheel/Axle Relative to Ground

1.5 Test Record - The progress of the test will be recorded in a written test log. The log will be prepared by the test engineer and will include all actions or events and the time of occurrence of the actions or events as deemed pertinent by the test engineer.

Photographs will be taken to document all test setups for all phases of testing. These photographs will become part of the test report.

Loading data will be manually recorded in the test log for each phase of testing.

1.6 Test Equipment List - The following equipment will be utilized during the phases of truck testing. Usage of the equipment is as defined on MMC drawing LAB 1007045 and this test procedure.

QTY	ITEM
1	200,000 pound Regent hydraulic jack
2	100,000 pound Regent hydraulic jack
2	50,000 pound Regent hydraulic jack
1	200,000 pound BLH load cell
2	50,000 pound BLH load cell
2	20,000 pound BLH load cell
2	2,000 pound BLH load cell
12	Linear variable deflection transformer ($\pm$ 1.00 inch)
10	Structure Laboratory Deflection Box ($\pm$ 3.0 inch)
2	Bristol Recorder
1	Hydraulic pump no. 1
1	Hydraulic pump no. 2 (Servo control system)
4	Leeds and Northrup recorder
1	Function generator HP No. 3300A
2	Moog servo control valve - Model 73-234-SR13
1	Servo control console

1.6.1 Verify that all equipment and handling hardware are in calibration and will remain in calibration during testing.

2.0 TEST OPERATIONS

2.1 Preparations - Either truck assembly may be used for this test. The brake beams and linkages must be removed from the truck assembly prior to testing.

2.2 Pretest (Load Phases 1 through 5)

2.2.1 Verify the test area is ready for test aritcle and test fixture is fabricated per MMC Drawing LAB 1007045.

2.2.2 Install truck assembly in test fixture as defined on MMC Drawing LAB 1007045 for Load Phase 1.

2.2.3 Install all equipment associated with load line 1 as defined in MMC Drawing LAB 1007045.

2.2.4 Install deflection transducers as defined in Figure 1 of this test procedure and sheets 14 and 15 of MMC Drawing LAB 1007045.
Record the dimensional coordinate location on Table 2.

2.2.5 Proof test Load Line 1 hydraulic system to a proof pressure of 1000 PSI above maximum operating pressure (Proof load to 6000 PSI tension load).

Table 2. Deflection Transducer Coordinate Location (Phase 1 through 5)
(Record after transducer installation)

TRANSDUCER	X	Y	Z
D1	+34.00	—	+15.56
D2	+49.56	—	0.0
D3	-34.00	—	+15.56
D4	+34.00	—	+15.69
D5	+49.56	—	0.0
D6	-34.00	—	+15.62
D7	—	-32.50	0.0
D8	—	+31.56	0.0
D9	+7.62	-45.31	—
D10	-7.87	-45.75	—
D11	+7.75	+45.25	—
D12	-7.75	+44.87	—
D13	—	-44.35	+12.75
D14	—	+43.75	+10.12
D15	0.0	—	+13.78
D16	0.0	—	+13.62
D17	—	-1.25	-14.00
D18	* -1.00	—	-16.75

* FOR PHASE 5 ONLY X = 0.00 IN

2.3 Sequential Operations (Load Phase 1)

1. Secure Low Bay Cell A test area per paragraph 3.1.
2. Review test personnel responsibility.
3. Verify Load cell and deflection transducer system calibration and zero setting.
4. Verify CDR readiness.
5. Record subzero data (Mag. tape and manual)
6. Increase hydraulic pressure on load line 1 until 20,000 pound tension load is maintained (theoretical pressure is 1000 PSI with L & N reading of 1.00).
7. Record 20,000 pound data (Mag. tape and manual).
8. Increase hydraulic pressure on load line 1 until 50,000 pound tension load is maintained (theoretical pressure is 2500 PSI with L & N reading of 2.50).
9. Record 50,000 pound data (Mag. tape and manual).
10. Increase hydraulic pressure on Load Line 1 until 75,000 pound tension load is maintained (theoretical pressure is 3,750 PSI with L & N reading of 3.75).
11. Record 75,000 pound data (Mag. tape and manual).
12. Increase hydraulic pressure on Load Line 1 Until 100,000 pound tension load is maintained (theoretical pressure is 5000 PSI with L & N reading of 5.00).
13. Record 100,000 pound data (Mag. tape and manual).
14. Start continuous CDR record (Mag. tape only).
15. Open hydraulic pressure line and let tension load reduce to zero.
16. Stop CDR record and allow Load Line 1 stabalize.
17. Record zero data (Mag. tape and manual).
18. Inspect truck assembly for any evidence of structural change.
19. Phase 1 loading complete.

2.4 Sequential Operations (Load Phases 2 and 3)

1. Proof Load, Load Line 2 to pressure of 1000 PSI above maximum operating pressure (proof load to 3000 PSI tension and compression).
2. Verify test setup is per MMC drawing LAB 1007045.
3. Secure Low Bay Cell A test area per paragraph 3.1.
4. Review test personnel responsibility.
5. Verify servo control system is ready for sine wave cyclic loading operation.
6. Verify load cell and deflection transducer system calibration and zero setting.
7. Verify CDR readiness.
8. Record subzero data (Mag. tape and manual).
9. Increase hydraulic pressure on Load Line 1 until 20,000 pound tension load is maintained (theoretical pressure is 1,000 PSI with L & N reading of 1.00) .
10. Activate servo control system to provide sine wave cyclic loading on load line 2 ± 10,000 pounds amplitude with a rate of 2.0 seconds/cycle.
11. Record 20,000 pound data (Mag. tape and manual).
12. Adjust servo control system to provide sine wave cyclic loading in load line 2 of ± 10,000 pounds amplitude with a rate of 4.0 seconds/cycle.
13. Record 20,000 pound data (Mag. tape and manual).
14. Increase hydraulic pressure in Load Line 1 until 50,000 pound tension load is maintained (theoretical pressure is 2,500 PSI with L & N ready of 2.50).
15. Adjust servo control system to provide sinewave cyclic loading On Load Line 2 of ± 10,000 pounds amplitude with a rate 4.0 seconds/cycle.
16. Record 50,000 pound data (Mag. tape and Manual).
17. Adjust servo control system to provide a sine wave cyclic loading load line 2 of ± 10,000 pounds amplitude with a rate of 2.0 seconds/cycle.

2.4 (Continued)

18. Increase hydraulic pressure in Load Line 1 until 100,000 pound tension load is maintained (theoretical pressure is 5,000 PSI with L & N reading of 5.00).
19. Adjust servo control system to provide sine wave cyclic loading on Load Line 2 of ± 10,000 pounds amplitude with a rate of 2.0 seconds cycle.
20. Record 100,000 pound data (Mag. tape and manual).
21. Adjust servo control system to provide a sinewave cyclic loading on Load Line 2 of ± 10,000 pounds amplitude with a rate of 4.0 seconds/cycle.
22. Record 100,000 pound data (Mag. tape and manual)
23. Reduce servo control system loads to zero.
24. Reduce hydraulic pressure in Load Line 1 to zero.
25. Record zero data (Mag. tape and manual).
26. Inspect truck assembly for any evidence of structural change.
27. Phase 2/Phase 3 loading completed.

2.5 Sequential Operations (Load Phase 4)

1. Proof load, load lines 2 and 3 to pressure of 1,000 PSI above maximum operation pressure (Proof Load to 1,400 PSI tension and compression).
2. Verify test setup is per MMC drawing LAB 1007045.
3. Secure Low Bay Cell A test area per paragraph 3.1.
4. Review test personnel responsibility.
5. Verify servo control system is ready for sine wave cyclic loading operation on Load Lines 2 and 3.
6. Verify load cell and deflection transducer system calibration and zero setting.
7. Verify CDR readiness.
8. Record subzero data (Mag. tape and manual)
9. Increase hydraulic pressure on load line 1 until 20,000 pound tension load is maintained (theoretical pressure is 1,000 PSI with L & N reading of 1.00).
10. Activate servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 of ± 2,000 pounds amplitude with a rate of 2.0 seconds/cycle.
11. Record 20,000 pound data (Mag. tape and manual).
12. Adjust servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 of ± 2,000 pounds amplitude with a rate of 4.0 seconds/cycle.
13. Record 20,000 pound data (Mag. tape and manual).
14. Increase hydraulic pressure on Load Line 1 until 50,000 pound load is maintained (theoretical pressure is 2,500 PSI with L & N reading of 2.50).
15. Adjust servo control system to provide sine wave cyclic loading on load lines 2 and 3 of ± 2,000 pounds amplitude with a rate of 4.0 seconds/cycle.
16. Record 50,000 pound data (Mag. tape and manual).
17. Adjust servo control system to provide sinewave cyclic loading on Load Lines 2 and 3 of ± 2,000 pounds amplitude with a rate of 2.0 seconds/cycle.
18. Record 50,000 pound data (Mag. tape and manual).

2.5 (Continued)

19. Increase hydraulic pressure on Load Line 1 until 100,000 pound load is maintained (theoretical pressure is 5,000 PSI with L & N reading of 5.00).
20. Adjust servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 of ± 2,000 pounds amplitude with a rate of 2.0 seconds/cycle.
21. Record 100,000 pound data (Mag. tape and manual).
22. Adjust servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 of ± 2,000 pounds amplitude with a rate of 4.0 seconds/cycle.
23. Record 100,000 pound data (Mag. tape and manual).
24. Reduce servo control system loads to zero.
25. Reduce hydraulic pressure in load line 1 to zero.
26. Record zero data (Mag. tape and manual).
27. Inspect truck assembly for any evidence of structural damage.
28. Phase 4 Loading complete.

2.6 Sequential Operations (Load Phase 5)

1. Proof load, load lines 2 and 3 to a pressure of 1,000 PSI above maximum operation pressure (Proof load to 2,600 PSI tension and compression).
2. Verify test setup is per MMC drawing LAB 1007045.
3. Secure Low Bay Cell A test area per paragraph 3.1.
4. Review test personnel responsibility.
5. Verify servo control system is ready for sine wave cyclic loading operation on Load Lines 2 and 3.
6. Verify load cell and deflection transducer system calibration and zero setting.
7. Verify CDR readiness.
8. Record subzero data (Mag. tape and manual).
9. Increase hydraulic pressure on load line 1 until 20,000 pound tension load is maintained (theoretical pressure is 1,000 PSI with L & N reading of 1.00).
10. Activate servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 of ± 8,000 pounds amplitude with a rate of 2.0 seconds/cycle.
11. Record 20,000 pound data (Mag. tape and manual).
12. Adjust servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 of ± 8,000 pounds amplitude with a rate of 4.0 seconds/cycle.
13. Record 20,000 pound data (Mag. tape and manual).
14. Increase hydraulic pressure on Load Line 1 until 50,000 pound load is maintained (theoretical pressure is 2,500 PSI with L & N reading of 2.50).
15. Adjust servo control system to provide sine wave cyclic loading on load lines 2 and 3 of ± 8,000 pounds amplitude with a rate of 2.0 seconds/cycle.
16. Record 50,000 pound data (Mag. tape and manual).
17. Adjust servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 ± 8,000 pounds amplitude with a rate of 2.0 seconds/cycle.
18. Record 50,000 pound data (Mag. tape and manual).

2.6 (Continued)

19. Increase hydraulic pressure on Load Line 1 until 100,000 pound load is maintained (theoretical pressure is 5,000 PSI with L & N reading of 5.00).
20. Adjust servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 of ± 8,000 pounds amplitude with a rate of 2.0 second/cycle.
21. Record 100,000 pound data (Mag. tape and manual).
22. Adjust servo control system to provide sine wave cyclic loading on Load Lines 2 and 3 of ± 8,000 pounds amplitude with a rate of 4.0 seconds/cycle.
23. Record 100,000 pound data (Mag tape and manual).
24. Reduce servo control system loads to zero.
25. Reduce hydraulic pressure in load line 1 to zero.
26. Record zero data (Mag. tape and manual).
27. Inspect truck assembly for any evidence of structural damage.
28. Phase 5 Loading complete.

2.7 Pretest (Load Phase 6)

2.7.1 Remove test fixture from cell A that was used for Phase 1 through 5 testing.

2.7.2 Verify test area is ready for test article and that test fixture is fabricated per MMC drawing LAB 1007045.

2.7.3 Install truck assembly on test fixture and equipment necessary to perform Phase 6 testing.

2.7.4 Verify installation of deflection transducers.

2.7.5 Record coordinate dimensions of deflection transducers on Table 3.

Table 3. Deflection Transducer Coordinate Location - Phase 6
(Record after transducer installation)

TRANSDUCER	X	Y	Z
D1	+34.00	—	+15.56
D2	+49.56	—	0.0
D3	-34.00	—	+15.56
D4	+34.00	—	+15.69
D5	+49.56	—	0.0
D6	-34.00	—	+15.69
D7	—	-32.50	0.0
D8	—	+31.56	0.0
D9	+7.62	-45.31	—
D10	-7.87	-45.75	—
D11	+7.75	+45.25	—
D12	-7.75	+44.87	—
D13	—	-46.75	+11.85
D14	—	+45.25	+12.12
D15	-1.50	—	+9.13
D16	+1.50	—	+10.38
D17 NOT USED	—	—	—
D18 NOT USED	—	—	—
D19	+38.00	+21.00	0.0
D20	+38.00	-21.00	0.0
D21	-38.00	+21.00	0.0
D22	-38.00	-21.00	0.0

2.8 Sequential Operations (Load Phase 6)

1. Proof load the load line to 1000 PSI above maximum operating pressure. (Proof load, load lines 1 and 2 to 6000 PSI tension and load lines 3 and 4 to 3000 PSI tension and compression).
2. Verify test setup is per MMC drawing LAB 1007045.
3. Secure Low Bay Cell A test area per paragraph 3.1.
4. Review test personnel responsibility.
5. Verify servo control system is ready for sine wave cyclic loading operation on load lines 3 and 4.
6. Verify load cell and deflection transducer system calibration and zero setting.
7. Verify CDR readiness.
8. Record subzero data (mag. tape and manual).
9. Increase hydraulic pressure on load lines 1 and 2 until 10,000 pound tension load is maintained on each (theoretical pressure is 1000 PSI with L & N readings of 2.00).
10. Activate servo control system to provide sine wave cyclic loading on load lines 3 and 4 of ± 10,000 pounds amplitude with a rate of 2.0 seconds/cycle.
11. Record 20,000 pound data (mag. tape and manual).
12. Adjust servo control system to provide sine wave cyclic loading on load lines 3 and 4 of ± 10,000 pounds amplitude with a rate of 4.0 seconds/cycle.
13. Record 20,000 pound data (mag. tape and manual).
14. Increase hydraulic pressure in load lines 1 and 2 until 25,000 pound tension load is maintained in each. (Theoretical pressure is 2,500 PSI with L & N reading of 5.00).
15. Adjust servo control system to provide a sine wave cyclic loading on load lines 3 and 4 of ± 10,000 pounds amplitude with a rate of 4.0 seconds/cycle.
16. Record 50,000 pound data (mag. tape and manual).
17. Adjust servo control system to provide a sine wave cyclic loading on Load Lines 3 and 4 of ± 10,000 pounds amplitude with a rate of 2.0 seconds/cycle.

2.8 (Continued)

18. Record 50,000 pound data (mag. tape and manual).
19. Increase hydraulic pressure in Load Lines 1 and 2 until 50,000 pound load is maintained on each (theoretical pressure is 50,000 PSI with L & N reading of 10.00).
20. Adjust servo control system to provide a cyclic loading on load lines 3 and 4 of ± 10,000 pounds amplitude with a rate of 2.0 seconds/cycle.
21. Record 100,000 pound data (mag. tape and manual).
22. Adjust servo control system to provide a cyclic loading on Load lines 3 and 4 of ± 10,000 pounds amplitude with a rate of 4.0 seconds/cycle.
23. Record 100,000 pound data (mag. tape and manual).
24. Reduce servo control system loads to zero.
25. Reduce hydraulic pressure to zero on Load Lines 2 and 1.
26. Record zero data (mag. tape and manual).
27. Inspect truck assembly for any evidence of structural change.
28. Phase 6 Loading completed.

2.9 Sequential Operations (Load Phase 7)

1. Proof Load the Load Lines to 1000 PSI above maximum operating pressure. (Proof Load, Load Lines 1 and 2 to 6000 PSI tension and Load Lines 3 and 4 to 2000 PSI tension).
2. Verify the test setup is per MMC drawing LAB 1007045 for Phase 7 testing.
3. Secure Low Bay Cell A test area per paragraph 3.1.
4. Review test personnel responsibility.
5. Verify hydraulic system is ready for Loading.
6. Verify Load Cell and deflection transducer system calibration and zero setting.
7. Verify CDR is ready for data record.
8. CDR record zero data (mag. tape and manual).
9. Increase hydraulic pressure on Load Lines 1 and 2 until 10,000 pound tension load is maintained on each (theoretical pressure is 1000 PSI with L&N reading of 2.00).
10. CDR record 20,000 pound load data (Mag. tape and manual).
11. Increase hydraulic pressure on Load Lines 3 & 4 until 50.0 pound tension load is maintained (theoretical pressure is 50 PSI with L&N readings of 0.1).
12. CDR record 20,000 pound vertical tension load with 50.0 pound lateral tension loading data (Mag. tape and manual).
13. Verify hydraulic system is ready for continuous Loading.
14. Verify CDR is ready for continuous recording.
15. Start CDR continuous record (Mag. tape only).
16. Increase hydraulic pressure continuously in Load Lines 3 & 4 until bolster rotation is observed.
17. Stop hydraulic pressure loading.
18. Stop CDR continuous recording.
19. Reduce hydraulic pressure on Load Lines 3 & 4 to zero.
20. Reduce hydraulic pressure on Load Lines 1 & 2 to zero.
21 Manually relocate ride truck assembly to start position.
22. CDR zero out all deflection transducers.
23. Repeat steps 8 through 22 three times.

2.9 <u>Sequential Operations (Load Phase 7)</u> (Cont)

24. Increase hydraulic pressure on Load Lines 1 & 2 until 25,000 pound tension Load is maintained on each (theoretical pressure is 2500 PSI with L&N readings of 5.00).
25. CDR record 50,000 pound loading data (Mag. tape and manual).
26. Increase hydraulic pressure on Load Lines 3 & 4 until 50.0 pound tension Load is maintained (theoretical pressure is 50 PSI with L&N readings of 0.1).
27. CDR record 50,000 pound vertical tension Load with 50.0 pound Lateral tension loading (Mag. tape and manual).
28. Verify hydraulic system is ready for continuous loading.
29. Verify CDR is ready for continuous recording.
30. Start CDR continuous record (Mag. tape only).
31. Increase hydraulic pressure continuously on Load Lines 3 & 4 until bolster rotation is observed.
32. Stop hydraulic pressure loading.
33. Stop CDR continuous recording.
34. Reduce hydraulic pressure on Load Lines 3 & 4 to zero.
35. Reduce hydraulic pressure on Load Lines 1 & 2 to zero.
36. Manually relocate ride truck assembly to start position.
37. CDR zero out all deflection transducers.
38. Repeat steps 24 through 37 three times.
39. Increase hydraulic pressure on Load Lines 1 & 2 until 100,000 pound tension Load is maintained (theoretical pressure is 5000 PSI with L&N readings of 10.0).
40. CDR record 100,000 pound loading data (Mag. tape and manual).
41. Increase hydraulic pressure on Load Lines 3 & 4 until 50.0 pound tension load is maintained (theoretical pressure is 50 PSI with L&N readings of 0.1).
42. CDR record 100,000 pound vertical tension load with 50.0 pound lateral tension loading data (Mag tape and manual).
43. Verify hydraulic system is ready for continuous loading.
44. Verify CDR is ready for continuous recording
45. Start CDR continuous record (Mag tape only).

2.9 Sequential Operations (Load Phase 7) (Cont)

46. Increase hydraulic pressure continuously or Load Lines 3 & 4 until bolster rotation is observed.
47. Stop hydraulic pressure loading
48. Stop CDR continuous recording.
49. Reduce hydraulic pressure on Load Lines 3 & 4 to zero.
50. Reduce hydraulic pressure on load Lines 1 & 2 to zero.
51. Manually relocate ride truck assembly to start position.
52. CDR zero out all deflection transducers.
53. Repeat steps 39 through 52 three times.
54. Inspect ride truck assembly for evidence of structural damage.
55. Phase 7 Loading completed.

3.0 SPECIAL CONSIDERATIONS

3.1 Safety - The safety personnel will be notified of the test start a minimum of 24 hours prior to test start. Immediately prior to test start, the test area will be secured to prevent access of personnel by accomplishing the following:

a. Inform personnel in structures lab of testing.

b. Rope off test area around Cell A.

c. Close door between low bay and equipment storage room.

d. Close door between low bay and high bay.

In the event of a catastrophic failure, the Security Department will be notified to maintain the area during the following evaluation period.

3.1.1 Martin Marietta Corporation supervisors are responsible for the safety of all personnel, safe working conditions, and the implementation of all applicable safety requirements.

3.1.2 All test team members and observers are responsible for adhearing to normal safety standards and procedures. They are also responsible for advising the test engineer of any unsafe acts or conditions observed during preparation for or conduct of dry testing.

3.2 Facility Power Failure - In the event of a facility power failure, the applied hydraulic loading is locked in must be reduced manually. An existing emergency power supply is automatically activated and provides power to load readout console.

3.3 Test Setup/Specimen Failure - In the event of a suspected failure during the test, the applied hydraulic loading will be reduced to zero by means of manually operated controls. Photographs of all failures will be taken and refined.

3.4 Test Personnel Required for Conduct of Test

1. Structures Laboratory

Test supervisor

Test engineer

L & N console

Servo control system

Hydraulic pumps 1 and 2

3.4 (Continued)

2. Dynamics - Integration of Specimen behavior and test requirement decisions.

3. Central Data Recording - Monitor IDS console and take data.

4. Safety (By notification)

3.5 General

1. Applied hydraulic loading may be reduced at any time during performance of the test at the discretion of the test engineer. All recycles of the test load shall be entered in the test log.

2. The sequence of testing shall be up to the discretion of the test engineer.

4.0 APPENDIX - TEST LOG

4.1 Test Log Sheets

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION

SAMPLE

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			-1-
8-8	10:00AM	NEMES	LEE MONGER (FACILITIES) CALLED TO NOTIFY THAT CAR ON WAY
8-8	1030		CAR ARRIVED AT FRONT GATE - GOT WEIKER MOVERS SIGNED IN AND PHOTOS AT GATE
8-8	1100		PICTURES IN FRONT OF ENGINEERING BUILDING FOR GEORGE MCROSSOW
	1130		CAR ARRIVED AT LOW BAY APRON REMOVED OLD BIAXIAL FIXTURE FROM LOW BAY USING WEIKER MOVERS AND TOOK TO BONE YARD
	1330		POSITIONED ONE CRANE INSIDE LOW BAY NEAR CELL B - USED THIS CRANE AND OVERHEAD CRANE TO UNLOAD CAR AND TRUCK INTO WEST SIDE OF LOW BAY
8-8	1400	NEMES	CAR IN POSITION IN LOW BAY

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			-2-
8-9	0700	NOMES	MECHANICS STARTED REMOVAL OF BRAKE ASSY MECHANISM. HAD TO REMOVE WHEEL AND AXLE ASSY TO COMPLETE REMOVAL OF BRAKE ASSY.
8-9	0900		LOCATED -059 BOLSTER LOAD LUGS AND WELDED ON THE TRUCK ASSY
	1030		REASSEMBLED TRUCK & AXLE - SET BEHIND CAR IN LOW BAY
	1200		STARTED LAYOUT OF CENTER BODY PLATE FOR WELDING TO BOLSTER LUG ASSY (-040). BACK OF BOLSTER HIGH AND HAD TO BE GROUND
	1300		REPOSITIONED BLOCKS UNDER CAR AND REMOVED HOUSE JACKS FOR SAFETY.
8-12	0700	NOMES	GROUND BOLSTER BODY PLATE BACK LEVEL - LOCATED ON -040 ASSY AND WELDED IN PLACE

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			-3-
13 AUG		NOMES	INSTALLED -043 ASSY OVER BOLSTER
			AND TORQUED BOLTS (18) TO 240 FT-LB.
			BUILT LOAD LINE 1 (VERTICAL PROLOAD)
			JACK - 200K - #AF 005324
13 AUG			LOAD CELL - 200K - EQ520058
14 AUG			MFG WORKED ON FITTING CHOCKS
14 AUG			& DEFLECTION SUPPORTS
15 AUG			MFG WORKED DEFLECTION SUPPORTS
			AND CHOCKS - LOST 1/2 DAY DUE
			TO WELDER BEING CALLED BACK TO
15 AUG			MFG DOWN HILL
16 AUG			MFG COMPLETED DEFLECTION
			SUPPORTS. CALIBRATION OF LVDT
16 AUG			COMPLETED (1.0 INCH = 10 MILLIVOLTS)
19 AUG			MFG STARTED LOCATING LVDT &
			SLDB ON TRUCK ASSY.

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4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION	
				-4-
19 AUG		NEMES	DEFLECTION GAGES & ID NUMBERS	
			D1-LVDT-CM013726	D10-SLOB- N/A
			D2-LVDT-CM013713	D11-SLOB- N/A
			D3-LVDT-CM013711	D12-SLOB- N/A
			D4-LVDT-CM013716	D13-LVDT-CM013724
			D5-LVDT-CM013714	D14-LVDT-CM013718
			D6-LVDT-CM013725	D15-LVDT-
			D7-LVDT-CM013712	D16-LVDT-
			D8-LVDT-CM013723	D17-LVDT-CM013727
			D9-SLOB- N/A	D18-LVDT-CM013728
19 AUG	245 PM	NEMES	RAN CHECKOUT ON PHASE 1 SETUP	
			INCLUDING CDR DATA RECORD. DEFLECT	
			GAGES D9, D10, D11, D12 LOOK LIKE DECAYING	
			IN CYCLIC NATURE. SPANGLER WILL TRY	
			TO WORK BUG OUT. AT 90% LIMIT LOAD	
			C-CLAMP ON GAGE D13 BROKE. TEST STOPPED	
			AND LOAD REDUCED TO ZERO. TEST	
			CHECKOUT COMPLETED AT 3:15 PM.	

4.1 Test Log Sheet

-5-

DATE	TIME	RECORDER	ACTION					
20 AUG		NEMES	PHASE I TEST					
			DATA TO BE RECORDED - LOAD LINE 1					
			%L/L	THEO PRESS	ACT PRES	THEO LEN	ACT LEN	
			0.	0.	0	0.	0	* ADDED
			20.	1000.	1010.	1.00	1.00	75% LIMIT
			50.	2500.	2450	2.50	2.50	LOAD - SEE
			100.	5000.	4930.	5.00	5.00	PAGE 6
			0	0.	0.	0.0	0.	
20 AUG	0800	NEMES	MFG REWORKED LOOSE DEFLECTION					
			GAGES AND RELOCATED D13.					
	0830		MOSES & SPANGLER STARTED ZERO OUT					
			OF DEFLECTION GAGES					
			LEN RECORDER # - EQ518559					
			HYDRAULIC JACK # - 638843					
			6000 PSI GAGE # - ME124179					
	0930		SECURE CELL A TEST AREA					
	0936		CDR SUB ZERO TAKEN					
	0937		HYDRAULIC LOAD TO 20% L/L					
20 AUG	0938	NEMES	CDR RECORD 20% LIMIT LOAD					

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			PHASE I (CONT) — 6 —
20 AUG	0938	NEMMOS	HYDRAULIC LOAD TO 50% LIMIT LOAD
	0941		CDR RECORD 50% LIMIT LOAD
	0942		HYDRAULIC LOAD TO 75~~00~~% LIMIT LOAD
			@ 75% LIMIT LOAD — L3D = 3.50 P = 3700 PSI
	0945		CDR RECORD 75% LIMIT LOAD
			HYDRAULIC LOAD TO 100% LIMIT LOAD —
	0946		(ADDED MORE OIL TO HAND PUMP)
	0954		CDR RECORD 100% LIMIT LOAD — STATIC
	0956		CDR RECORD 100% to 0% LIMIT BLEED
			OFF OF HYDRAULIC LOAD
	0957		ZERO DATA SET
20 AUG	0958	NEMMOS	TEST COMPLETED —

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			PHASE II CHECKOUT -7-
22 AUG	1:30	Nemes	CHECKOUT SERVO & LOAD LINE 2
			WITH CDR DATA RECORD
	1:35		CDR STATIC ZERO
	1:37		HYDRAULIC PRESS IN L/L #1 TO 2520 PSI
			CDR RECORD SUB-ZERO - 50,000# VERT
	1:40		START HYDRAULIC PUMP FOR SERVO
			TO 2000 PSI
			SERVO TO ±4000 lbs TO SEE IF
			CDR OK - YES OK
			SERVO TO ±5000 lbs & 1/2 SEC/CYCLE
			CDR DATA SET
			SERVO TO ±10000 lbs @ 1/2 SEC/CYCLE
			CDR DATA SET
			SERVO SYSTEM OFF
			CDR DATA SET
			VERTICAL PRELOAD OFF
			CDR DATA SET
22 AUG	1:50 PM	Nemes	TEST CHECKOUT COMPLETE

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			PHASE II - TEST -8-
23 AUG	0900	Namos	MFG REWORKED GAGE #1 & #18
			SUPPORTS
	0915		GOT TAB RUN FROM DENNIS - LOOKED
			GOOD SO CALLED PETE - TO RUN @
			1000.
	0930		SHUTTLE (CDR) IS GETTING SYSTEM - UP
	0930		MFG HOOK UP PUMP #1 & MAINTAINER
			ON LOAD LINE #1 (VERTICAL PRELOAD)
	1005		SYSTEM CAL & @ ZERO - SL & CDR READY
	1016		CDR SUB-ZERO
	1020		HYDRAULIC PUMP NO 1 ON
			LOAD LINE 1 @ 20% LIMIT
	1024		CDR RECORD 20% LIMIT LOAD
	1025		PUMP #2 (SERVO) @ 2000 PSI
			SERVO SYSTEM @ ±10K & 2.0 sec/cycle
	10		CDR RECORD 20% YL @ 2.0 sec/cycle
	1030		~~CDR~~ LOST LOAD LINE #1 PRESSURE
			& LOAD - SHUT LOADS DOWN

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
	1037	Nemes	CDR ZERO
			HYDRAULIC PUMP #1 @ 20%
	1039		CDR ZERO WITH 20% LIMIT LOAD
			Servo to 2.0 Sec/cycle
	1041		CDR RECORD 20% @ 2.0 Sec/cycle
	1042		LOST PUMP #1 AGAIN - GOT THE
			5000 PSI PUMP INTO SYSTEM
			HYDRAULIC PUMP #1 (5000 PSI) @
	1048		20% LIMIT LOAD —
	1050		Servo to 20% L/L & 4.0 Sec/cycle
	1054		CDR Record 20% LIMIT LOAD @ 4.0 Sec/cyc.
			VERTICAL TO 50% LIMIT
	1056		CDR RECORD 50% LIMIT
			SERVO SYSTEM ON @ ± 10K & 2.0 sec/cycle
	1059		CDR RECORD 50% LIMIT & 2.0 Sec
			SERVO SYSTEM TO 4.0 Sec/cycle
	1101		CDR RECORD 50% LIMIT LOAD @ 4.0 Sec/cyc.
			VERTICAL TO 100% LIMIT LOAD
	1103		CDR RECORD 100% LIMIT

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4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
	1104	Nemes	Servo to ±10K @ 2.0 Sec/cycle
	1105		CDR Record 100% @ 2.0 sec/cycle
			Servo @ 100% @ 4.0 Sec/cycle
	1106		CDR Record 100% @ 4.0 Sec/cycle
			Servo to Zero
			Vertical to Zero
	1108		CDR Record Zero
			SHUT OFF SYSTEM
	1110	Nemes	TEST COMPLETE

4.1 Test Log Sheet

DATE	TIME	RECORDER	PHASE III ACTION
8/26	1200	Nemes	STARTED SYSTEM CAL & ZERO FOR
			PHASE III TEST. LOAD LINE #2 CHECKED
			OK FOR PRINT
	1251		CDR SUB ZERO
	1259		CDR 20% LIMIT LOAD – NO CYCLIC
			PUMP #2 (SERVO) TO 2000 PSI PRESS
			SERVO to ±10K @ 2.0 sec/cycle
			PROBLEMS WITH BOLSTER LUG ROTATION
			DUE TO NOT ENOUGH RESTORING TORQUE
	1306		REDUCE PUMP #1 TO 10% LIMIT LOAD
	1310		PUMP #2 OFF
	1311		PUMP #1 OFF
			START TEST – SECOND TIME
	1320		CDR – ZERO —
			HYDRAULIC PUMP #1 TO 50% L/L
	1322		CDR – 50% Limit LOAD – NO SERVO
	1323		START PUMP #2 TO 2000 PSI
	13		CDR – 50%
	13		Servo @ 4.0 sec/cycle

4.1 Test Log Sheet

DATE	TIME	RECORDER	PHASE III ACTION -2-
8/26		Nimmes	CDR @ 50% L/L & 4.0 sec/cycles
			GET ~~EXCESSIVE~~ MOVEMENT ON BOLSTER
			REDUCE LOAD LINE 1 TO ZERO
			CDR - ZERO RECORD
	1328		SHUT DOWN SYSTEM TO ADD
			CHOCKS IN THE BOLSTER LUG
			START SYSTEM UP
	1358		CDR - ZERO - NO GOOD
	1359		CDR - ZERO #2 - NO LOAD
			PUMP #1 - ON
	1400		CDR - 20% LIMIT LOAD
	1402		PUMP #2 - ON - 2200 PSI
			Servo ±10K @ 2.0 sec/cycle
	1403		CDR - 3.0 Sec Burst 20% - @ 2.0 Sec/cyc
			Servo - ±10K @ 4.0 Sec/cycle
	1404		CDR - 6 Sec Burst 20% @ 4.0 Sec/cyc
			Servo to Zero
			Vertical to 50% L/L
	1406		CDR - 50% Limit with NO SERVO

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4.1 Test Log Sheet

DATE	TIME	RECORDER	PHASE III ACTION -3-
8/26		Names	Servo ±10K @ 2 sec/cycle
	1407		CDR 50% L/L @ 2.0 sec/cycle
			Servo ±10K @ 4.0 sec/cycle
	1408		CDR – 50% L/L @ 4.0 sec/cycle
			Servo to zero
			Vertical 100% – 5.0 L/N
	1410		CDR – 100% L/L no servo
			Servo ±10K – 2 sec/cycle
	1411		CDR Record 100% L/L @ 2.0 sec/cycle
			Servo to ±10K – 4.0 sec/cycle
	1412		CDR – 100% L/L @ 4.0 sec/cycle
			Servo system off –
			Vertical pump to zero
	1413		CDR – Final zero no load
			Test completed

4.1 Test Log Sheet

DATE	TIME	RECORDER	PHASE 4 ACTION -1-
28 AUG	0730	NEMES	REVISED SETUP ON SERVO JACKS TO
			PROVIDE LATERAL STABILITY TO BOLSTER
			FITTING.
	0830		RAN SERVO SYSTEM CHECKOUT @ 20%
			LIMIT LOAD ±1,600 LBS SERVO @ 2 SEC/CY & 4 SEC/CYCLE
			SYSTEM CHECKS OUT GOOD
	0930		CDR & SL ZERO OUT DEF XDUCERS
	1004		CDR – SUBZERO
			PUMP #1 ON – 20% LIMIT LOAD
	1007		CDR – 20% LIMIT LOAD NO SERVO
			PUMP #2 ON – TO 6000 PSI
	~~1013~~		SERVO @ 20% L/L & 2000 LBS @ 0.5 CY/SEC
	1013		CDR RECORD – 20% L/L @ 2 SEC/CYCLE
			Servo @ 20% L/L & 2000 LBS @ .125 CY/SEC
	1015		CDR – RECORD 20% L/L @ 4 SEC/CYCLE
			Vertical PRELOAD @ 50% L/L WITH
			SERVO @ ±2000 LBS @ 4 SEC/CYCLE
	1019		CDR – RECORD 50% L/L @ 4 SEC/CYCLE
			Servo sys to 2.0 SEC/CYCLE

4.1 Test Log Sheet

DATE	TIME	RECORDER	PHASE 4 ACTION -2-
28AU17	1021	Nemes	CDR RECORD 50% LL @ 2. Sec/cycle
			VERTICAL TO 100% LL @ 2.0 Sec/cycle
			SERVO @ ±2K @ 2.0 Sec/cycle
	1025		CDR - RECORD 100% LIMIT @ 2.0 Sec/cycle
			SERVO TO ±2K @ 4.0 Sec/cycle
	1026		CDR - RECORD 100% LIMIT @ 4.0 Sec/cycle
			SERVO SYSTEM TO ZERO LOADING
			PUMP #2 OFF -
			PUMP #1 OFF -
	1032		CDR - RECORD FINAL ZERO
		Nemes	TEST - PHASE 4 - COMPLETED

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4.1 Test Log Sheet

DATE	TIME	RECORDER	PH 5 ACTION -1-
29 Aug	0900	N JAMES	RAN PHASE 5 CHECKOUT - NJ330
			± 8000 LBS MAX ON SERVO
	1000		ZERO OUT GAGES
	1023		CDR - RECORD SUB-ZERO
			PUMP #1 ON & PRELOAD TO 20% L/L
	1026		CDR - RECORD 20% L/L - NO SERVO
			SERVO TO ±8000 LBS @ 2 Sec/cycle
	1030		CDR - RECORD 20% L/L @ 2 Sec/cycle
			SERVO to ±8K @ 4 Sec/cycle
	1032		CDR - RECORD 20% L/L @ 4.0 Sec/cycle
			PUMP #1 to 50% LIMIT LOAD
			SERVO to ±8K @ 4.0 Sec/cycle
	1034		CDR - RECORD 50% L/L @ 4.0 Sec/cycle
			Servo to ±8K @ 2.0 Sec/cycle
	1036		CDR - RECORD 50% - 2.0 Sec/cycle
			PUMP #1 TO 100% LIMIT LOAD
			SERVO to ±8K @ 2.0 Sec/cycle
	1038		CDR - RECORD 100% L/L @ 2 Sec/cycle
			SERVO to ±8K @ 4.0 Sec/cycle

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4.1 Test Log Sheet

DATE	TIME	RECORDER	PHASE 5 ACTION -2-
29 AUG	1040	Nomes	CDR - RECORD 100% L/L @ 4.0 Sec/cyc
			REDUCE SERVO to ±5K @ 4.0 Sec/cyc
			PUMP #1 to 20% L/L
			SERVO to ZERO COMD
			PUMP #1 TO ZERO
	1043		CDR - RECORD ZERO
		Nemes	TEST COMPLETE —

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			PHASE 6 — ①
1 OCT 74	0910	NEMES	SYSTEM READY TO CONDUCT
			PHASE 6 TESTING
	0915		CDR SUB ZERO
			HYDRAULIC SYSTEM (PUMP #1) ON
			HYDRAULIC PUMP #2 (SERVO SYSTEM) ON
	0923		TO 2300 PSI.
	0926		CDR RECORD 20% @ 2.5 Sec/cycle
			*SERVO SYSTEM TO ZERO
	0929		SERVO SYSTEM TO ± 10,000 LBS @ 4.0 Sec/cycle
	0931		CDR RECORD 20% @ 4.0 Sec/cycle
			*RUN 1.0 MIN OF FILM
			SERVO SYSTEM TO ZERO
			HAD TO RETORQUE 3/8 BOLTS HOLDING
			FITTINGS ON WHEEL/AXLE ASSEMBLY
			AS SEVERAL BOLTS WORKED LOOSE.
	0940		PUMP #1 - VERTICAL TO 50% LIMIT LOAD
			SERVO SYSTEMS TO ± 10,000 LBS @ 4.0 Sec/cycle
	0945		CDR RECORD 50% @ 4 Sec/cycle
			RUN 1.0 MIN OF FILM

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4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			ANBE6 (2)
10-7-74	0948	Nomes	SERVO SYSTEM TO ZERO
			SERVO SYSTEM TO ±10K @ 2.0 SEC/CYCLE
	0951		ODR RECORD 50% L/L @ 2.0 Sec./cycle
			* 1.0 MIN OF FILM
			SERVO SYSTEM TO ZERO - CHANGE SIGN
	0956		VERTICAL TO 100% LIMIT LOAD — COULD
			NOT GET LOADS EQUAL SO WENT TO ZERO
			VERTICAL LOAD LINES #1 & #2 CROSSED
			@ WALL — SWITCHED LINES
	1015		VERTICAL PRELOAD TO 100% LIMIT LOAD
			SERVO SYSTEM ±10K @ 2.0 sec/cycle
	1021		ODR RECORD 100% LIMIT @ 2 sec/cycle
			RUN 1.0 MIN OF FILM
			SERVO TO ±10K @ 4.0 sec/cycle
	1027		ODR RECORD 100% LIMIT @ 4.0 sec/cycle
			RUN 1.0 MIN OF FILM
			SERVO SYSTEM TO ZERO
			200% LIMIT LOAD ON VERTICAL PRELOAD
			SERVO SYS TO ±10K @ 2.0 Sec/cycle
	1035		ODR RECORD 200% @ 2.0 sec/cycle

4.1 Test Log Sheet

DATE	TIME	RECORDER	Phase 6 ACTION (3)
10-7		Nemes	SERVO SYSTEM to ±[illegible]% @ 4.0 Sec/Cycle
	1037		CDR RECORD 20% @ 4 Sec/Cycle
			REDUCE SERVO TO ZERO
			REDUCE VERTICAL TO ZERO
	1038		CDR RECORD ZERO
	1040	Nemes	TEST COMPLETE
			NOTE: *DEFLECTION GAGE D5 SLIPPED
			OF OF WHEEL ON 20% FINAL
			RUNS.
			*GAGE D6 ALSO OFF OF WHEEL

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			PHASE 6 (1)
2 OCT 74	1258	NOMES	RERUN PHASE 6 - 20% 2&4 Sec/cyc AND
			100% AT 4.0 Sec/cyc SINCE LOST D5, D6,
			D13, D14 ON LAST RUN
	1259		CDR - SYSTEM SUBZERO
			VERTICAL PRELOAD (1&2) TO 20% LIMIT LOAD
			SERVO SYSTEM TO ±10K @ 2.0 Sec/cyc
	1307		CDR RECORD 20% @ 2.0 Sec/cyc
			SERVO SYSTEM TO ±10K @ 4 Sec/cyc
	1309		CDR RECORD 20% @ 4.0 Sec/cycle
			SERVO SYSTEM TO ZERO
			VERTICAL PRELOAD TO 100% LIMIT LOAD
			SERVO SYSTEM TO ±10K @ 4.0 Sec/cycle
	1314		CDR RECORD 100% @ 4.0 Sec/cycle
			SERVO SYSTEM LOADING TO ZERO
			VERTICAL LOADS TO ZERO
	1321		CDR RECORD ZERO DATA SET
	1325		TEST COMPLETE
			*ALL GAGES STILL IN PLACE
			AFTER TEST

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION
			PHASE 6 - RERUN #2 (1)
3 OCT	0800	Nomes	THE DEFLECTION GAGES ARE ZEROED
			OUT WITH TRUCK ASSEMBLY IN A
			RACKED POSITION RESULTING FROM A
			TENSION LOADING ON WHEEL/FITTING
	0855		CDR SUB ZERO
			VERTICAL PRELOAD TO 20% LIMIT
			SERVO SYSTEM PUMP ON
			SERVO LOADS TO ±2,000 lbs @ 2.0 sec/cycle
	0905		CDR RECORD 20% @ ±2000 lbs - 2.0 sec/cycle
			SERVO SYSTEM TO ±2K @ 4.0 sec/cycle
	0906		CDR RECORD ±2K @ 4.0 sec/cycle
			Servo sys TO ±5K @ 4.0 sec/cycle
	0908		CDR RECORD ±5K @ 4.0 sec/cycle
			Servo SYS TO ±5K @ 2.0 sec/cycle
	0909		CDR RECORD ±5K @ 2.0 sec/cycle
			SERVO SYSTEM OFF
			VERTICAL PRELOAD TO ZERO
	0911		CDR RECORD ZERO SET
3 OCT		Nomes	TEST COMPLETE

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION			
			PHASE 7 - LUBE ON BODY CONTROL PLATE (1)			
17 SEPT	1230	NEMES	RAN CHECKOUT - LOAD LINES 1 & 2			
			TO 100% LIMIT LOAD - HAD TO			
			RE POSITION DEFLECTION GAGES D1 & D2.			
			DUE TO ROTATION OF TRUCK ASSY			
	1300		READY TO RUN TEST - THERE IS			
			NO SUBZERO TAKEN ON SYSTEM			
			20% LIMIT LOAD			
			1ST RUN	2ND RUN	3RD RUN	ACTION
			1314	1340	1411	CDR ZERO DATA POINT
			—	—		20% ON LINES 1 & 2
			1315	1346	1413	CDR DATA POINT
			1320	--	—	LINES 3 & 4 TO 20 POUND LOAD
			1322	1351	1415	CDR RECORD 20 LB DATA
			SKIP	SKIP	1415	LINES 3 & 4 TO 40 LBS
			SKIP	SKIP	1415	CDR RECORD 40 LBS
			1328	1354		LINES 3 & 4 TO 60 LBS
			1330	1356	*	CDR RECORD 60 LBS
17 SEPT		NAMES	1332	1357	1418*	START CDR CONTINUOUS RECORD

* USED 80 LBS FOR 3RD CYCLE

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION			
			PHASE 7 - LUBE			2
17 Sept		Nomes	1ST RUN	2ND RUN	3RD RUN	ACTION
			✓	✓	✓	INCREASE 3&4 UNTIL TRUCK ROTATES
			✓	✓	1419	STOP CDR CONTINUOUS RECORD
			✓	✓	✓	REDUCE 3&4 TO ZERO
			✓		✓	REDUCE 1&2 TO ZERO
			1337	1358	1420	CDR RECORD ZERO DATA
			✓	✓	✓	RELOCATE TRUCK ASSY
			✓	✓	✓	ZERO OUT DEFLECTION GAGES
			✓	✓	✓	VERIFY CDR READY
			✓	✓	COMPLETE TEST	REDO TEST
			NOTE: HAD TROUBLE HOLDING LOW PRESS ON MAINTAINER. HOOKED UP THE LOAD LINES 3&4 TO HAND PUMP WITH TEE IN PRESS LINE. WORKED FINE.			
17 Sept		Nomos				

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4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION			
			PHASE 7 - LUBE			3
17SEPT	1421	NAMES	50% LIMIT LOAD TEST			
			1ST RUN	2ND RUN	3RD RUN	ACTION
			1422	1434	1443	CDR ZERO DATA POINT
			✓	✓	✓	50% LIMIT LOAD ON LINES 1 & 2
			1427	1437	1445	CDR RECORD 50% LOAD
			✓	✓	✓	LOAD LINES 3 & 4 to 50 Lbs!
			1429	1438	1445	CDR RECORD 50% & 50 Lbs
			1430	1438	1446	CDR START CONTINUOUS RECORD
			✓	✓	✓	INCREASE LOADS ON LINES 3 & 4
						UNTIL BOLSTER ROTATES
			✓	✓	✓	STOP LOADS ON LINES 3 & 4
			✓	✓	✓	STOP CDR RECORD
			✓	✓	✓	REDUCES LOADS ON LINES 1 & 2 TO ZERO
			1432	1441	1447	CDR RECORD ZERO SET
			✓	✓	✓	RELOCATE TRUCK ASSEMBLY
			✓	✓	✓	ZERO OUT DEFLECTION GAGES
			✓	✓		REPEAT TEST
					✓	TEST @ 50% LOAD COMPLETE
17SEPT		NAMES				

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION			
			PHASE 7 - LUBE			(4)
17 Sept	1448	Names	100% LIMIT LOAD TEST			
			1ST RUN	2ND RUN	3RD RUN	ACTION
			1448	1458	1506	CDR ZERO DATA POINT
			1452	✓	✓	100% ON LINES 1 & 2
			1452	1501	1509	CDR RECORD 100% DATA
			✓	✓	✓	START CDR CONTINUOUS
						RECORDING
			✓	✓	✓	INCREASE LOADS IN LINES 3 & 4
						UNTIL BOLSTER ROTATES
			✓	✓	✓	STOP LOADING LINES 3 & 4
			✓	✓	✓	STOP CDR RECORDING
			1457	1505	1512	* CDR RECORD ZERO SET *
			✓	✓	✓	RELOCATE TRUCK ASSEMBLY
			✓	✓	✓	ZERO OUT DEFLECTION GAGES
			✓	✓	X	REPEAT TEST
	1515					PHASE 7 TEST COMPLETED
17 Sept		Names				

* REDUCE LINES 1 & 2 TO ZERO *

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION PHASE 7 - NO LUBE				①
23SEPT	0800	NEMES	SETUP READY FOR PHASE 7 TESTING (NO-LUBE)				
			1ST RUN	2ND RUN	3RD RUN	4TH RUN	ACTION
			0819	0830	0837	0942	CDR RECORD ZERO DATA (NOT [illegible])
			✓	✓	✓	✓	LOAD LINES 1 & 2 TO 20% (2.0 ON LEN)
			0821	0833	0838	✓	CDR RECORD 20% LIMIT LOAD
			✓	✓	✓	✓	LINES 3 & 4 TO 50 lb TENSION (.10 LEN)
			0824	0834	0839	0945	CDR RECORD 20% & 50 lb LATERAL
			✓	✓	✓	✓	VERIFY HYDRAULIC SYSTEM READY
			✓	✓	✓	✓	FOR CONTINUOUS LOADING
			✓	✓	✓	✓	VERIFY CDR READY FOR
			✓	✓	✓	✓	CONTINUOUS LOADING
			✓	✓	✓	✓	START CDR CONTINUOUS RECORD
			—	.5	.6	1.00	INCREASE LATERAL LOADING
			✓	✓	✓	✓	ON LINES 3 & 4 UNTIL BOGIE ROTATES
			✓	✓	✓	✓	STOP HYDRAULIC LOADING, - LINES 3 & 4
			✓	✓	✓	✓	STOP CDR RECORD
			✓	✓	✓	✓	REDUCE LINES 3 & 4 TO ZERO
			✓	✓	✓	✓	REDUCE LINES 1 & 2 TO ZERO
23SEPT		NEMES	✓	✓	✓	✓	RELOCATE TRUCK ASSEMBLY

4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION				
			PHASE 7 – NO LUBE				(2)
23 SEPT		NEMES	1st RUN	2ND RUN	3RD RUN	4TH RUN	ACTION
			✓	✓	✓	✓	CDR ZERO OUT DEFLECTION GAGES
			✓	✓	✓	✓	RERUN BREAKAWAY TEST
						✓	20% LIMIT LOAD COMPLETE
			50% LIMIT LOAD TESTING				
			1ST RUN	2ND RUN	3RD RUN	4TH RUN	ACTION
			0842	0849	0854	0938	CDR RECORD ZERO DATA (NOT SUBZERO)
			✓	✓	✓	✓	LOAD LINES 1 & 2 TO 50% LIMIT (5,000 LBS)
			0845	0851	0856	0939	CDR RECORD 50% VERTICAL LOAD
			✓	✓	✓	✓	LINES 3 & 4 TO 50 LB TENSION (1,100 LBS)
			0846	0852	0857	0940	CDR RECORD 50% & 50 LB LATERAL
			✓	✓	✓	✓	VERIFY HYDRAULIC SYSTEM READY
							FOR CONTINUOUS LOADING
			✓	✓	✓	✓	VERIFY CDR READY FOR CONTINUOUS RCD
			✓	✓	✓	✓	START CDR CONTINUOUS RECORD
			1.1	1.2	1.35	1.70	INCREASE LOADING ON LINES 3 & 4
			✓	✓	✓	✓	UNTIL BOOSTER ROTATES
23 SEPT		NEMES	✓	✓	✓	✓	STOP LOADING LINES 3 & 4

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4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION					
			PHASE 7 - NO LUBE (3)					
23 SEPT		NEMES	1ST RUN	2ND RUN	3RD RUN	4TH RUN		ACTION
			✓	✓	✓	✓		STOP CDR CONTINUOUS RECORD
			✓	✓	✓	✓		REDUCE LINES 3 & 4 TO ZERO
			✓	✓	✓	✓		REDUCE LINES 1 & 2 TO ZERO
			✓	✓	✓	✓		RELOCATE TRUCK ASSEMBLY
			✓	✓	✓	✓		CDR ZERO OUT DEFLECTION GAGES
			✓	✓	✓	✓		RERUN BREAKAWAY TEST
						✓		50% LIMIT LOAD COMPLETE
			100% LIMIT LOAD TESTING					
			1ST RUN	2ND RUN	3RD RUN	4TH RUN	5TH RUN	ACTION
			0900	0909	0916	0923	0931	CDR RECORD ZERO (NOT SUBZERO)
			✓	✓	✓	✓	✓	LOAD LINES 1 & 2 TO 100% LIMIT LOAD
			0903	0912	0919	0926	0933	CDR RECORD 100% LIMIT LOAD
			✓	✓	✓	✓	✓	LINES 3 & 4 TO 50 LB TENSION
			0905	0913	0920	0927	0934	CDR RECORD 100% & ~~50 LB~~ LATERAL
			✓	✓	✓	✓	✓	VERIFY HYDRAULIC SYSTEM READY/
								FOR CONTINUOUS LOADING
			✓	✓	✓	✓	✓	VERIFY CDR READY / FOR CONTINUOUS
23 SEPT		NEMES						RECORDING

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4.1 Test Log Sheet

DATE	TIME	RECORDER	ACTION PHASE 7-NO LUBE 4					
23SEPT		NOMES	1ST RUN	2ND RUN	3RD RUN	4TH RUN	5TH RUN	ACTION
			✓	✓	✓	✓	✓	INCREASE LOADING ON LINES 3&4
								UNTIL BOLSTER ROTATES
			✓	✓	✓	✓	✓	STOP HYDRAULIC LOADING OF 3&4
			✓	✓	✓	✓	✓	STOP CDR CONTINUOUS RECORD
			✓	✓	✓	✓	✓	REDUCE LINES 3&4 TO ZERO
			✓	✓	✓	✓	✓	REDUCE LINES 1&2 TO ZERO
			✓	✓	✓	✓	✓	RELOCATE TRUCK ASSEMBLY
			✓	✓	✓	✓	✓	CDR ZERO OUT DEFLECTIONS
			✓	✓	✓	✓	✓	RERUN BREAKAWAY TEST
							✓	100% TESTING COMPLETE
23SEPT	1000	NOMES	PHASE 7 - NO LUBE TESTING COMPLETE					

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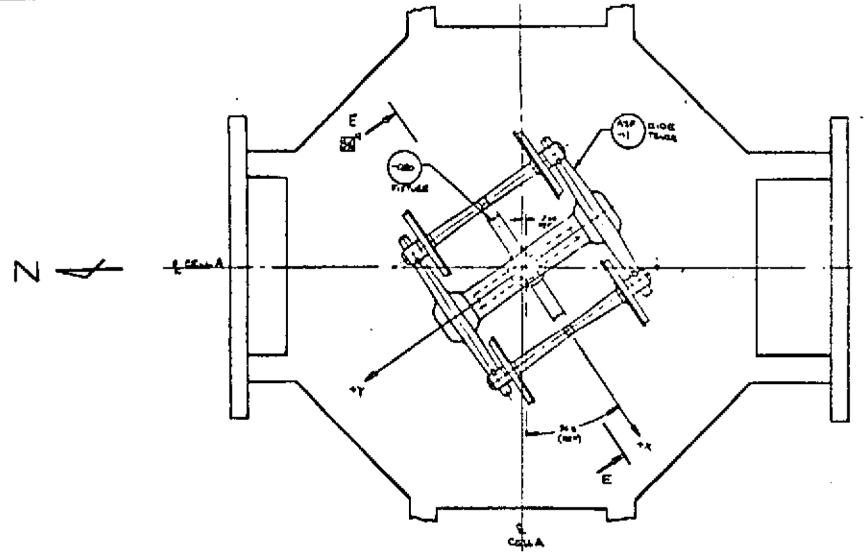
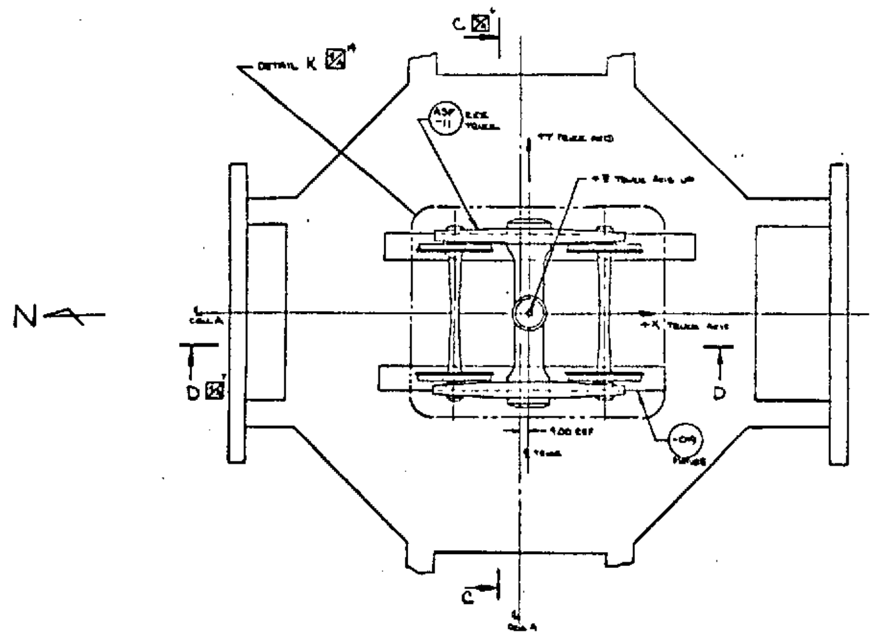
APPENDIX B



−010 Assembly
(Load Phases 6 & 7)



−009 Assembly
(Load Phases 1 through 5)

Note

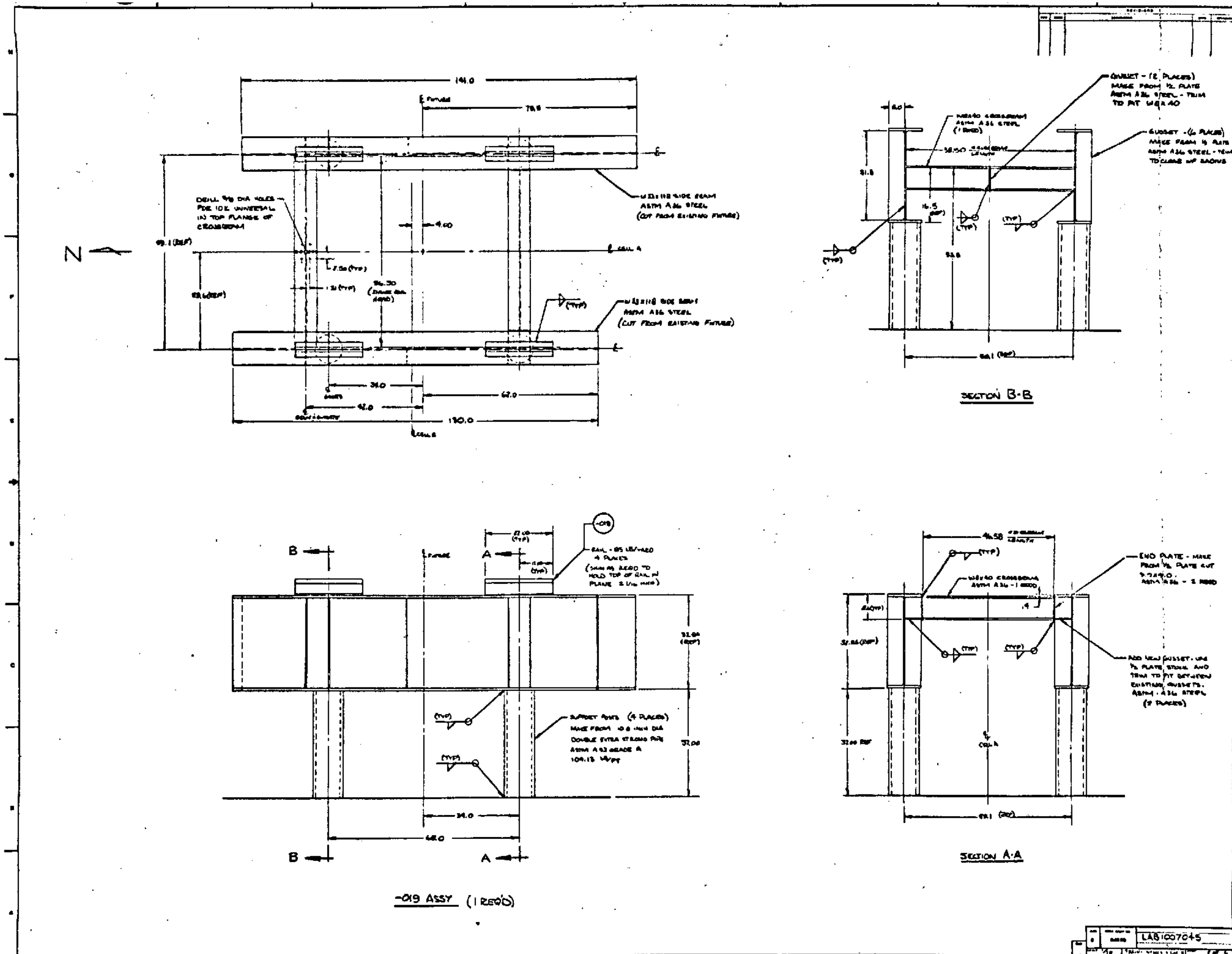
1. All welds use 70XX weld rod and 1/4 inch minimum leg unless otherwise noted. When welding on ride truck assembly attach ground clamp to weld area to prevent arcing across bearings.
2. See sheet 19 for notes on deflection transducers.

Assembly/quantity required

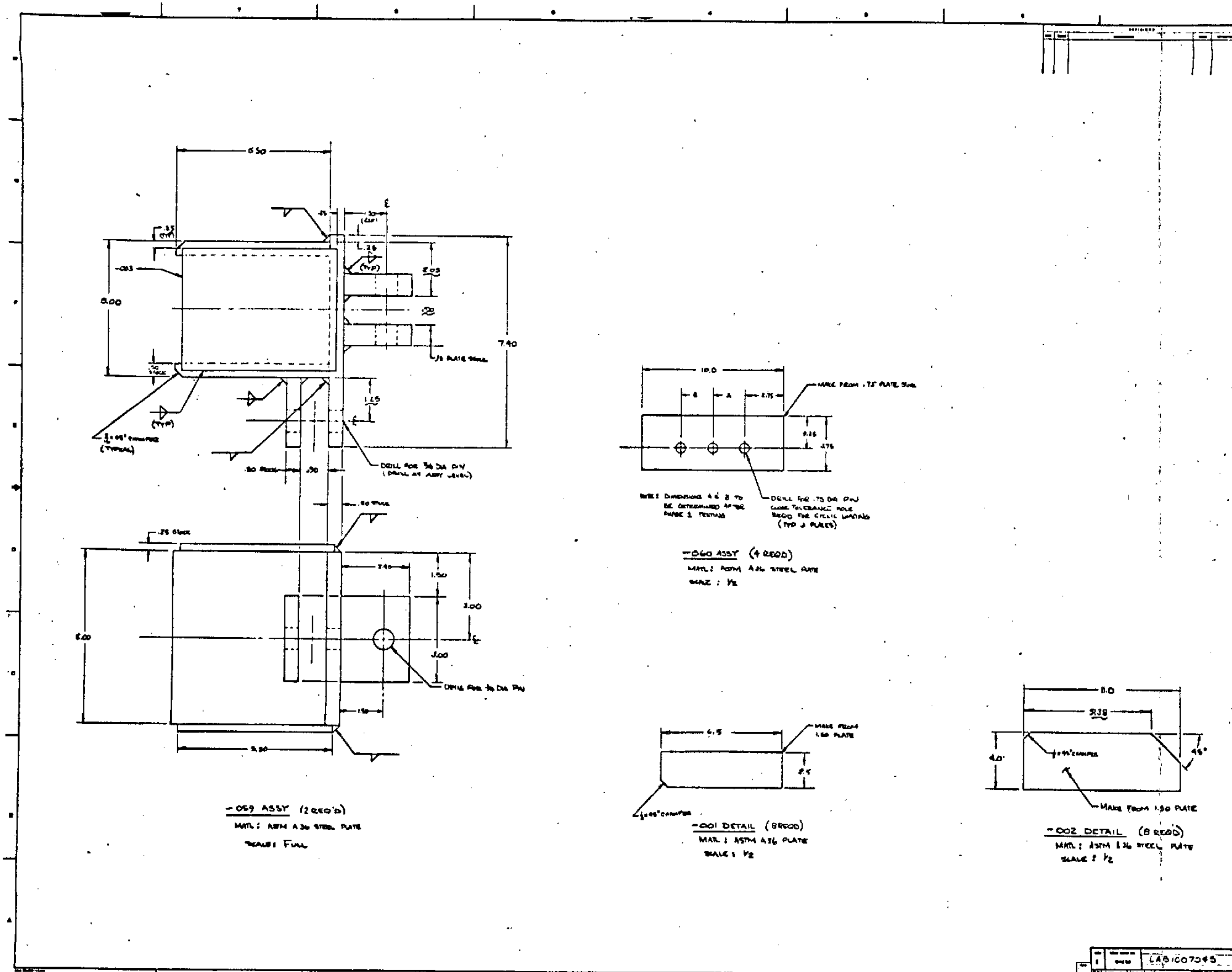
- TRAIN -
TRUCK ASSEMBLY TEST

LAB 10070 95

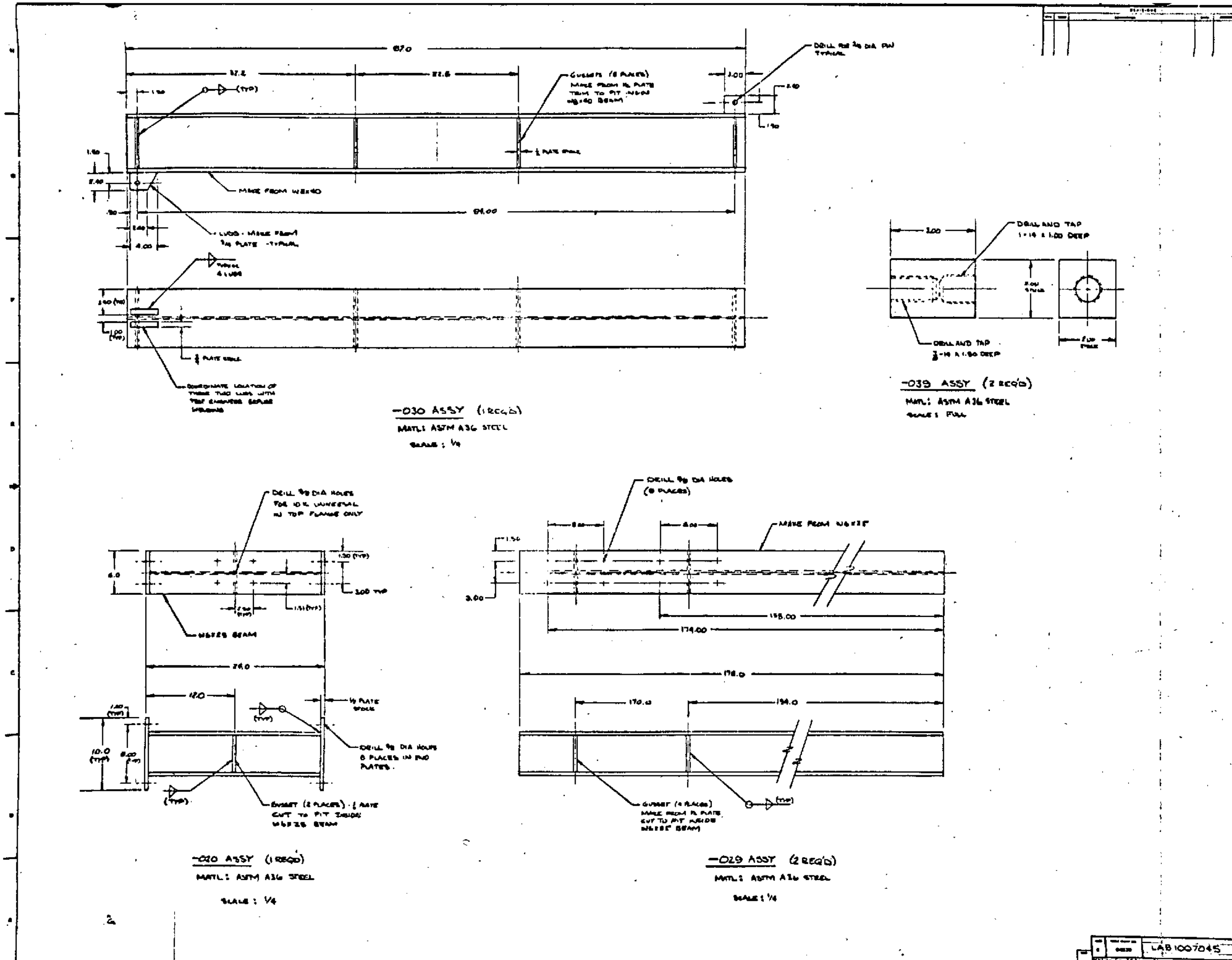
NONE



TR 1316.74


6.50
8.00
7.40
1.25
-059 ASSY (2 REQ'D)
MAT'L: ASTM A36 STEEL PLATE
SCALE: FULL
10.0
-060 ASSY (4 REQ'D)
MAT'L: ASTM A36 STEEL PLATE
SCALE: 1/2
6.5
-001 DETAIL (8 REQ'D)
MAT'L: ASTM A36 PLATE
SCALE: 1/2
11.0
4.0
45°
MAKE FROM 1.50 PLATE
-002 DETAIL (8 REQ'D)
MAT'L: ASTM A36 STEEL PLATE
SCALE: 1/2
LA81007045

TR-1315-74



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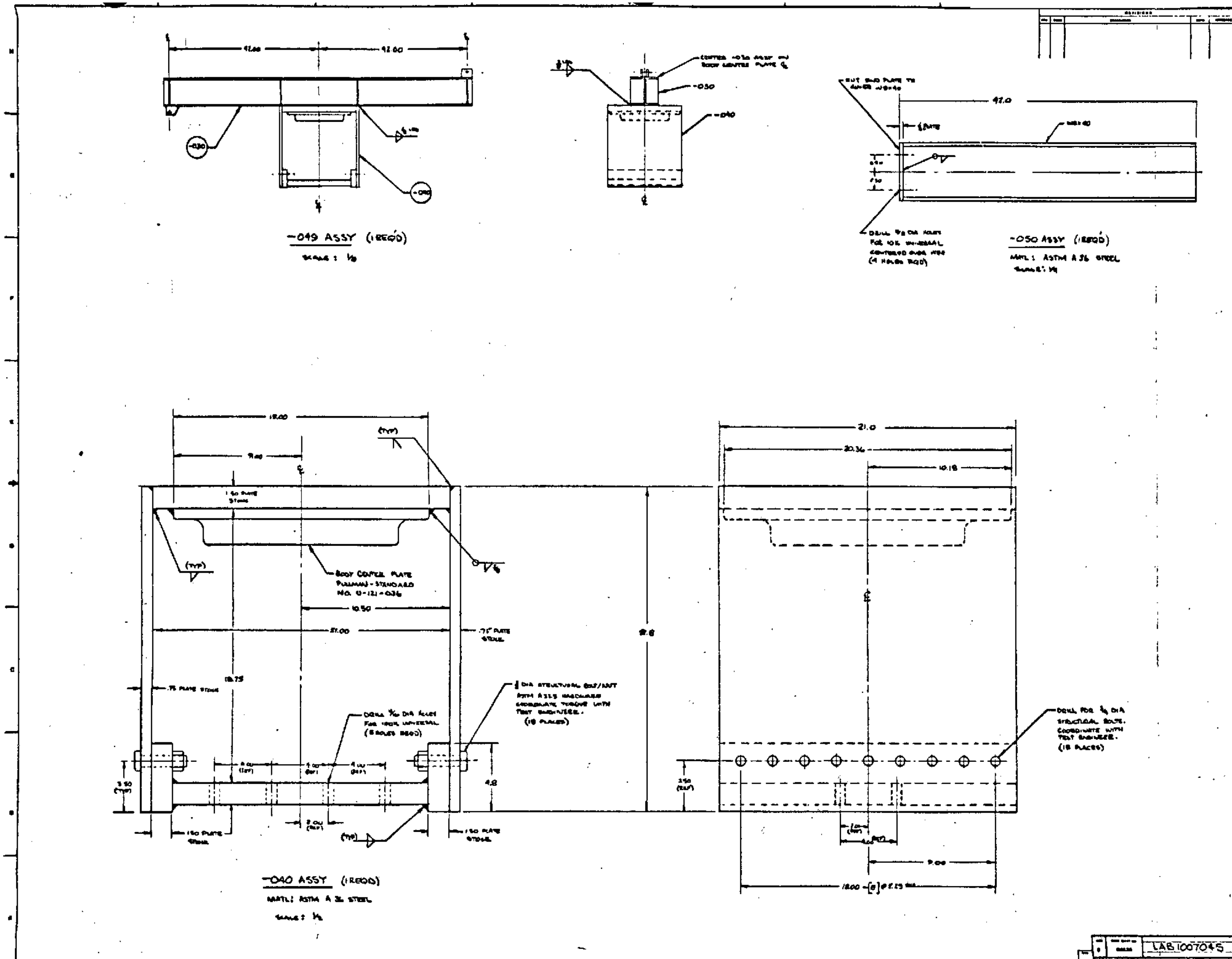
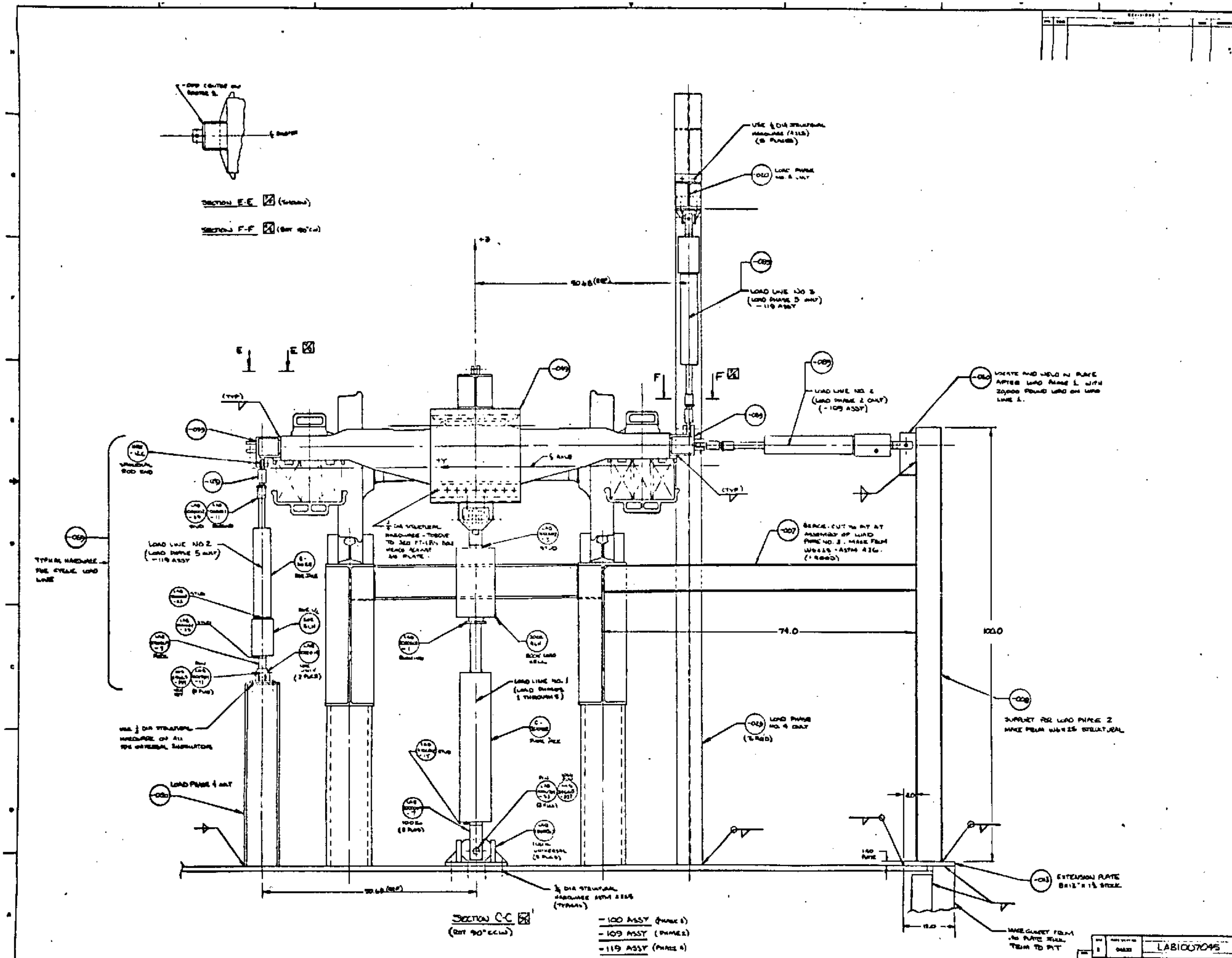
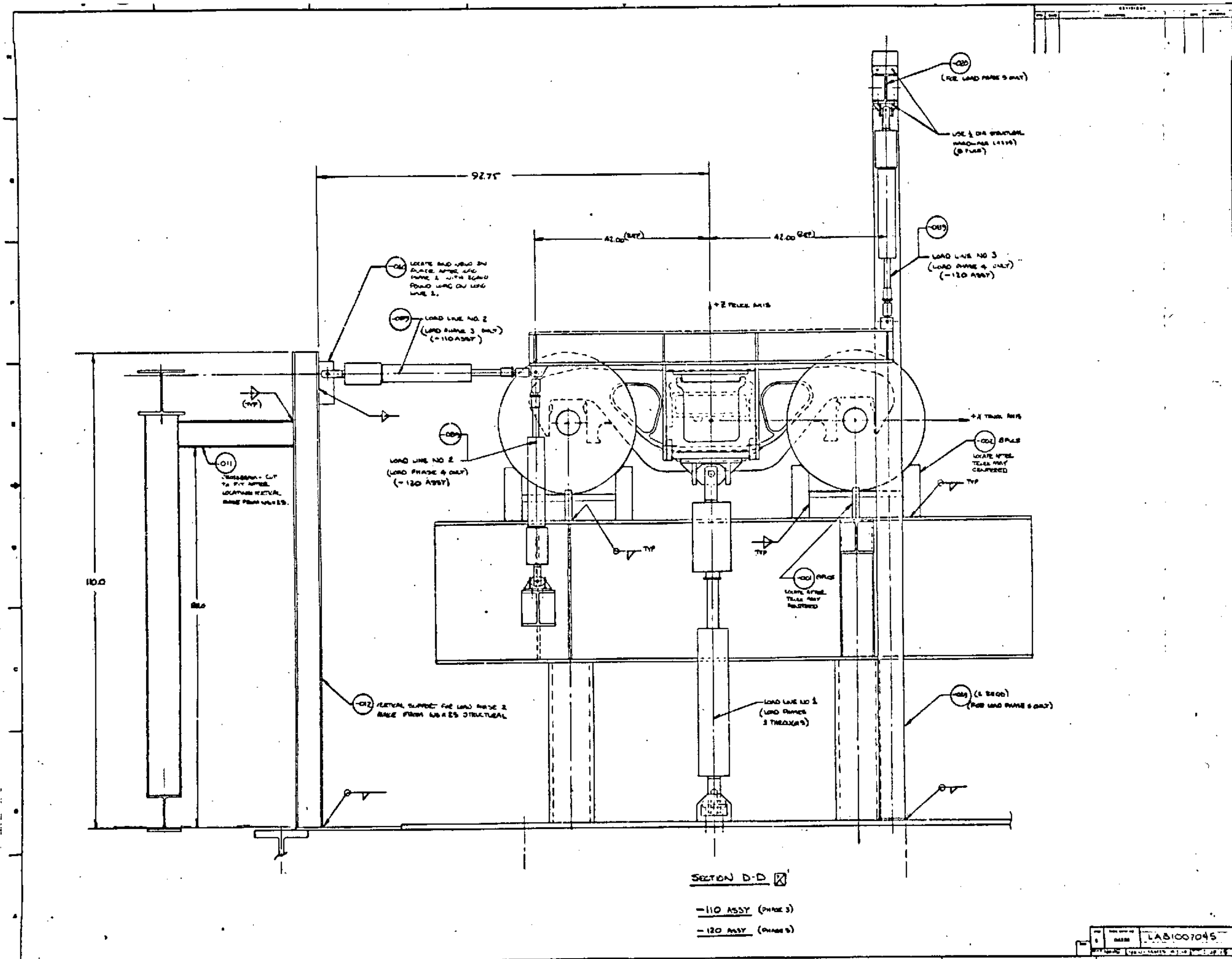
TR-435-74


-049 ASSY (1 REQ'D)
-050 ASSY (1 REQ'D)
MAT'L: ASTM A 36 STEEL
-040 ASSY (1 REQ'D)
MAT'L: ASTM A 36 STEEL
BODY CENTER PLATE
21.0
20.36
10.18
18.00
9.00
10.50
21.00
18.75
LAB 1007045

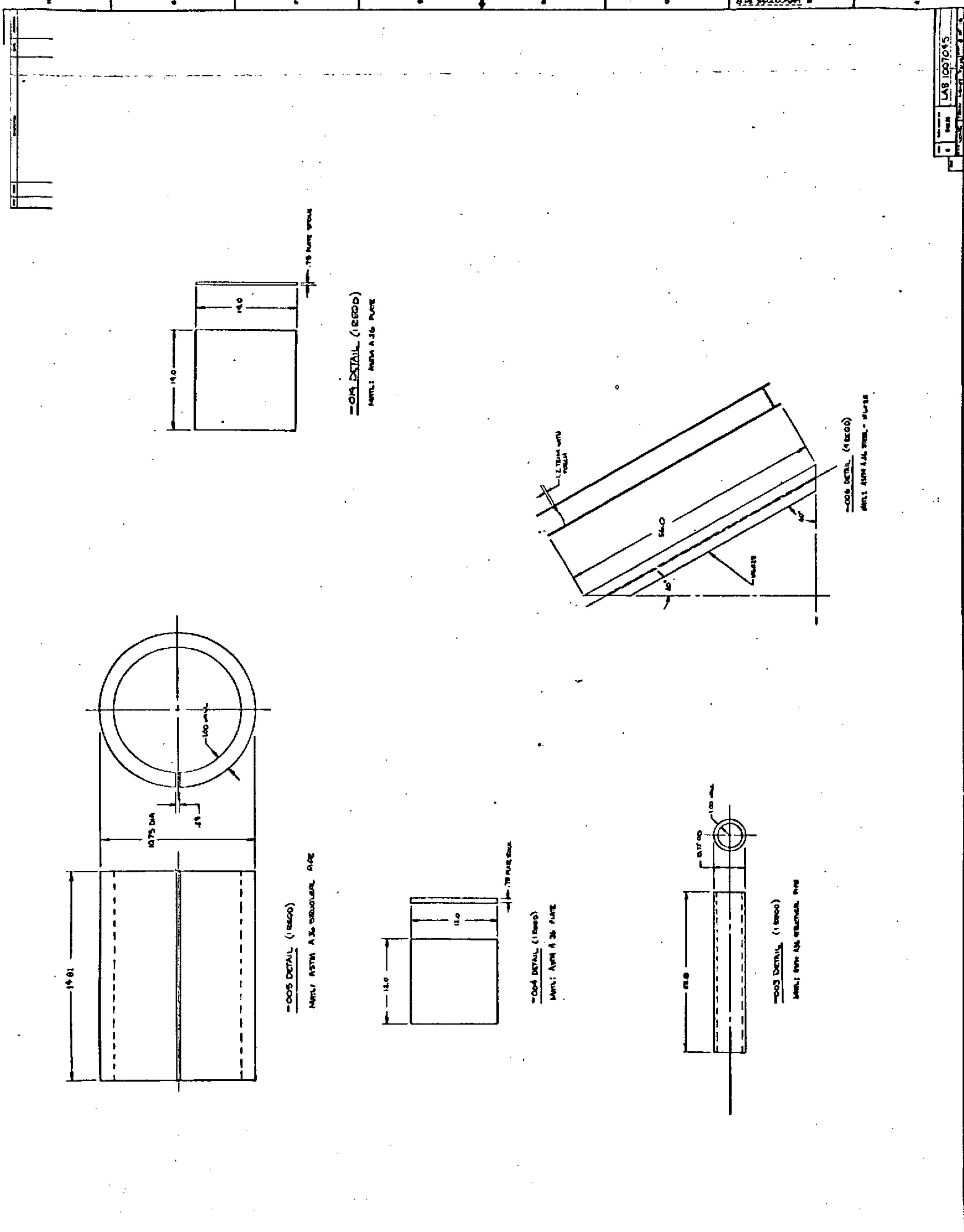
Page

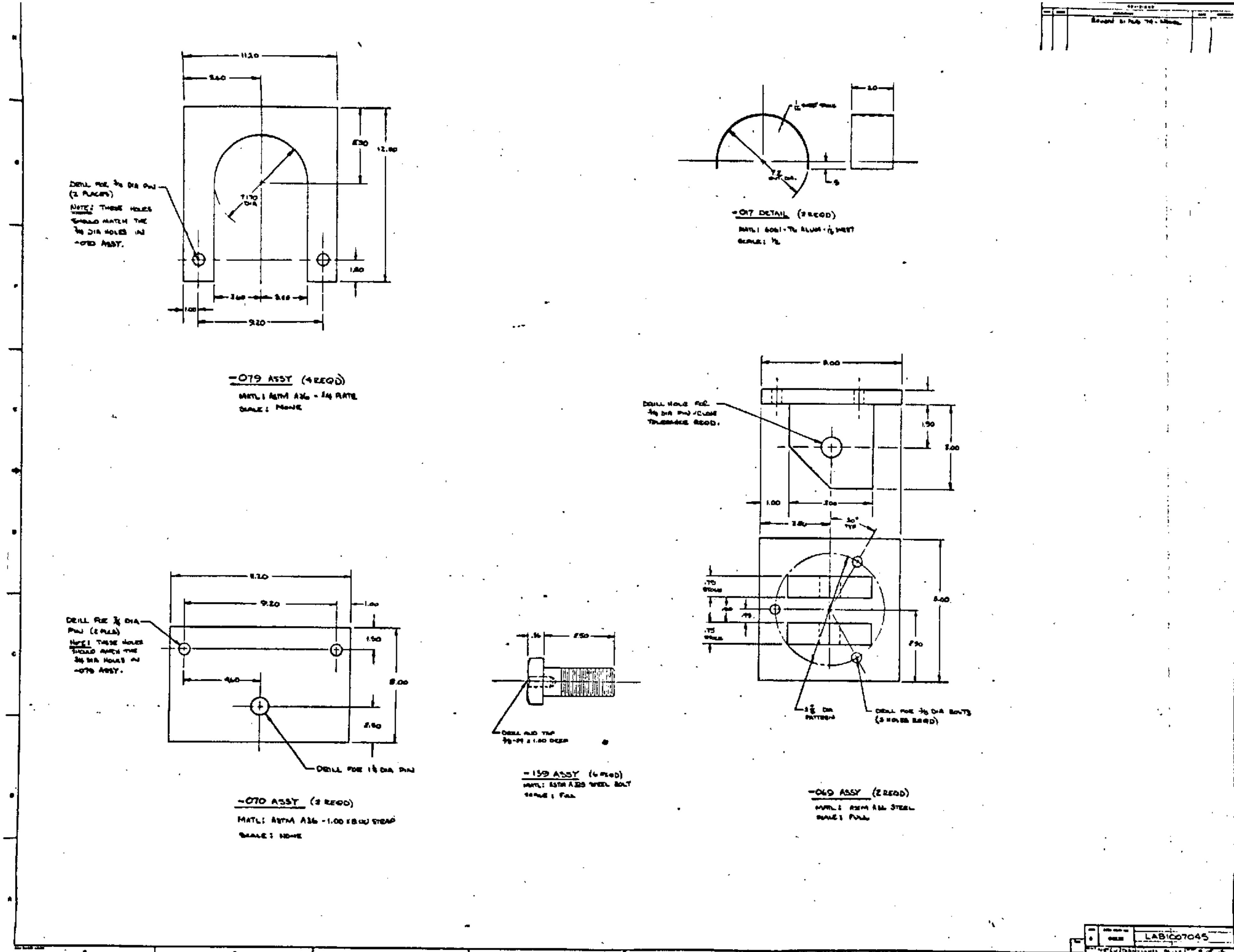

SECTION E-E
SECTION F-F
LOAD LINE NO 2
LOAD LINE NO. 1
EXTENSION PLATE
SECTION C-C
-100 ASSY
-109 ASSY
-119 ASSY
LAB10070045

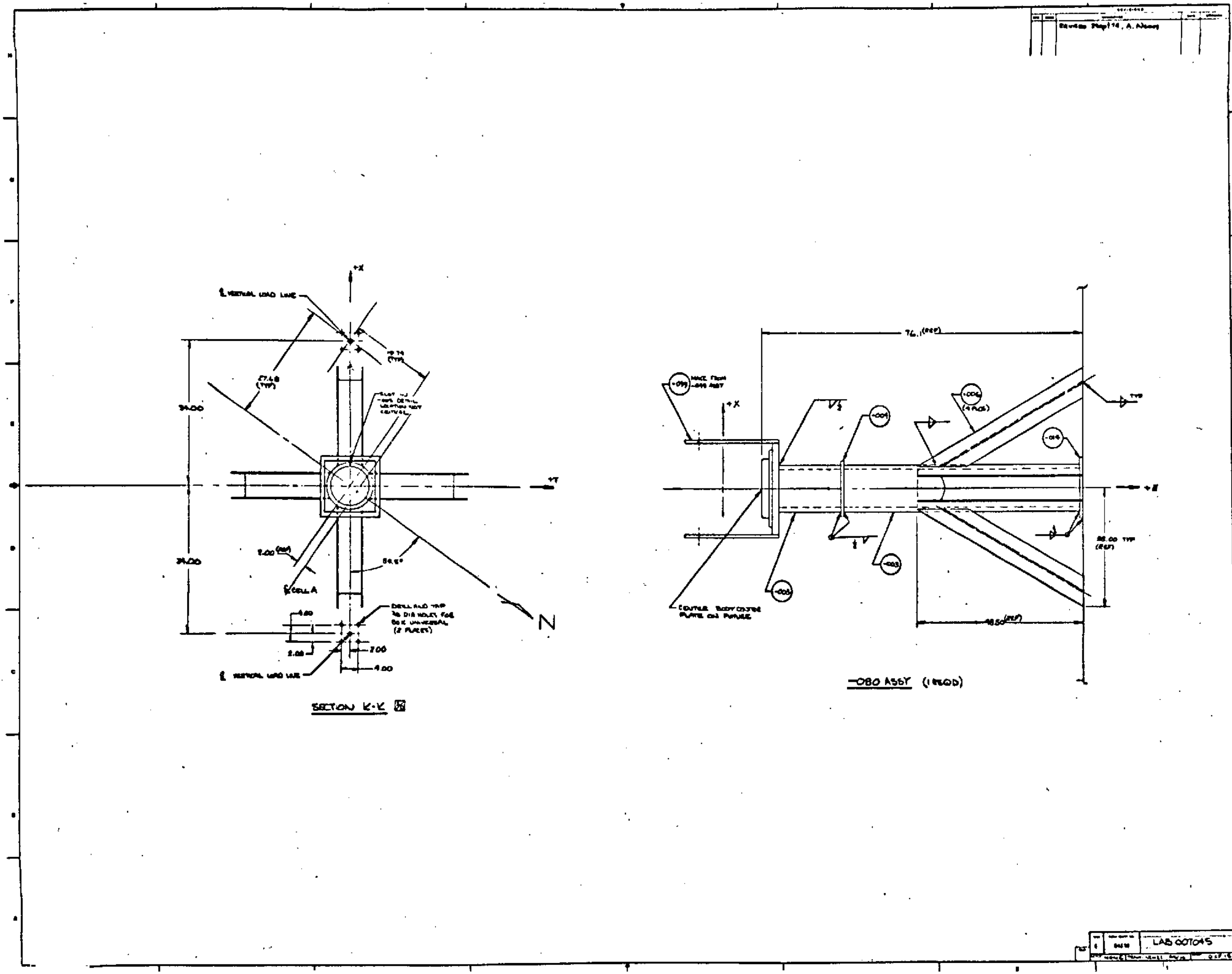


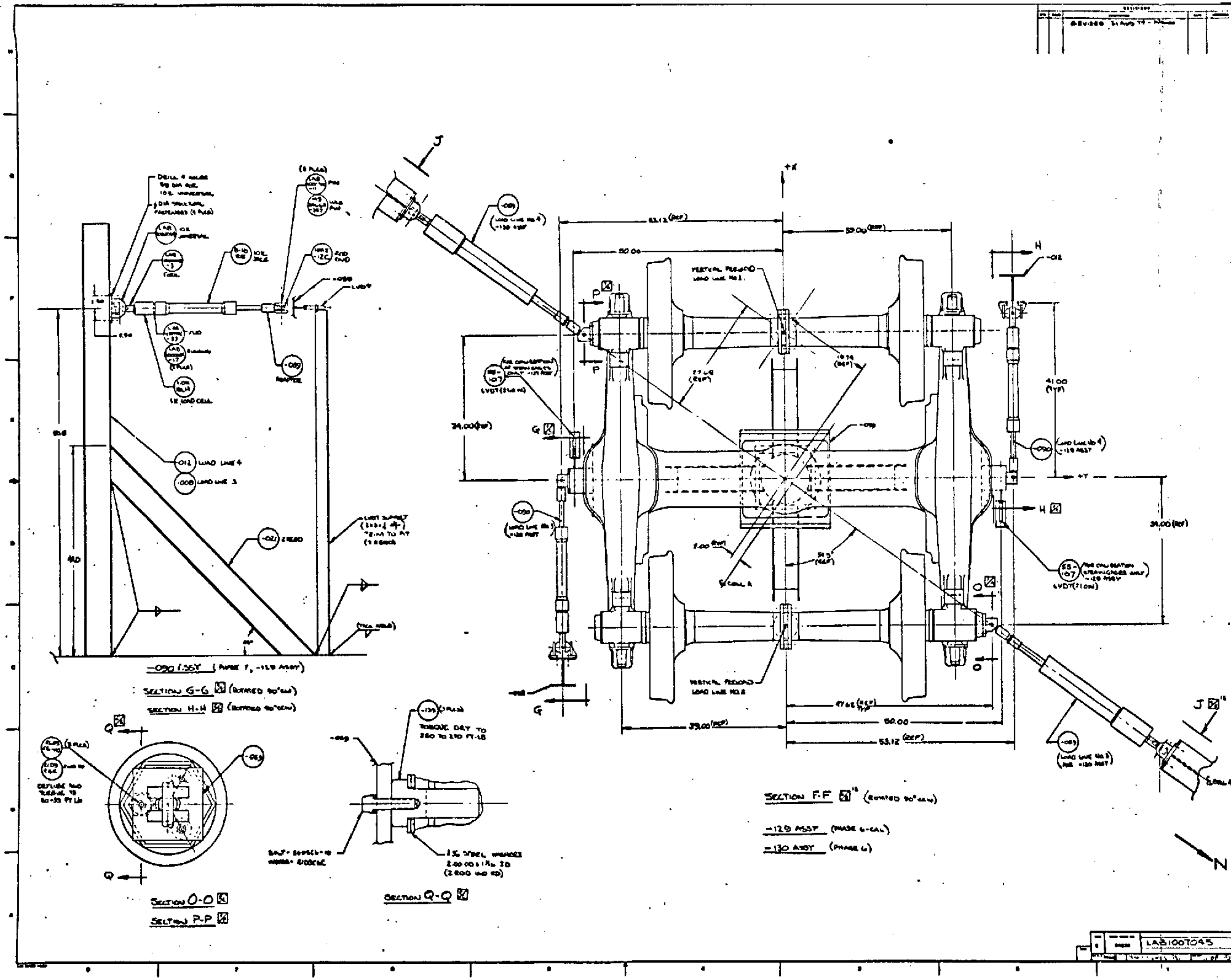
92.75
42.00 (REF)
42.00 (REF)
+Z TRUCK AXIS
+X TRUCK AXIS
LOAD LINE NO. 2
LOAD LINE NO 3
LOAD LINE NO 2
LOAD LINE NO 1
110.0
TYP
SECTION D-D
-110 ASSY (PHASE 3)
-120 ASSY (PHASE 5)
LAB1007045

TR-13-S-74

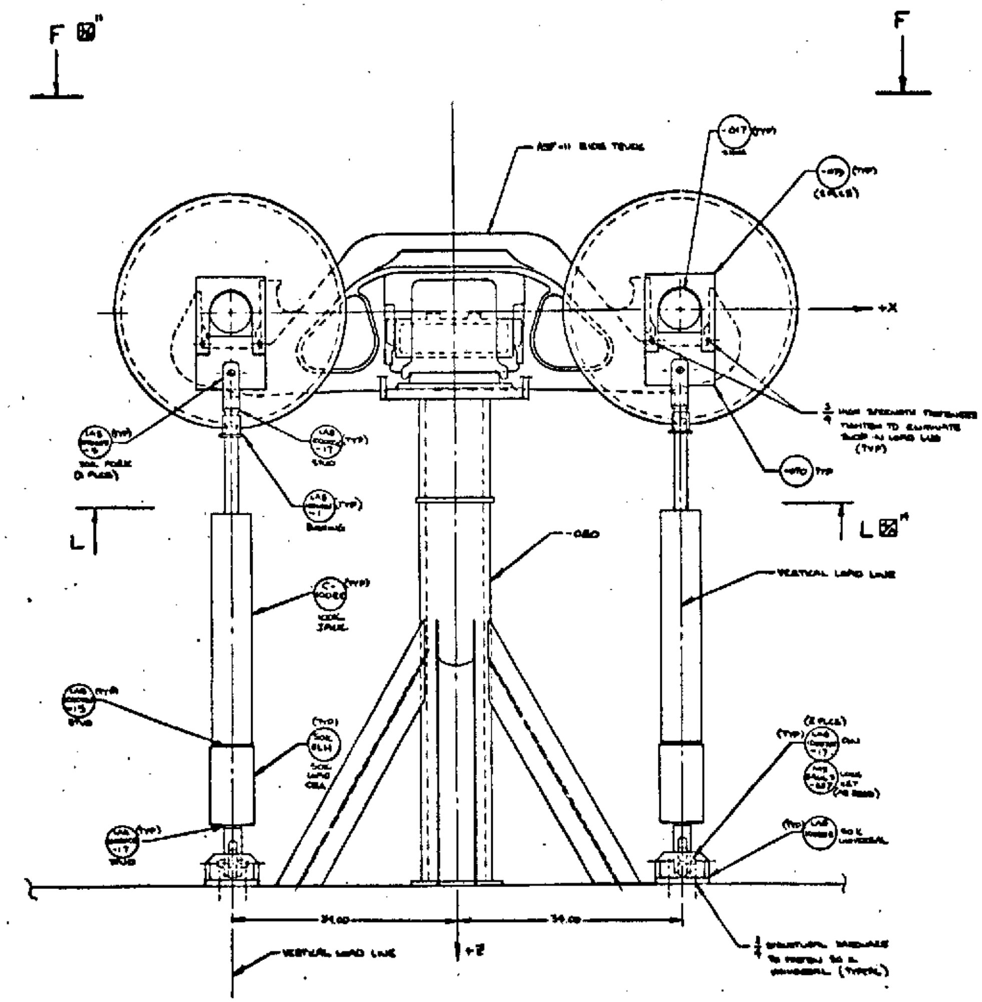

LAB 1007095
-014 DETAIL
-006 DETAIL
-005 DETAIL
10.75 DIA
-004 DETAIL
-003 DETAIL


-079 ASSY (4 REQD)
MATL: ASTM A36 - 1/4 PLATE
SCALE: NONE
-017 DETAIL (2 REQD)
SCALE: 1/2
-070 ASSY (2 REQD)
MATL: ASTM A36 - 1.00 X 8.00 STRAP
SCALE: NONE
-139 ASSY (4 REQD)
MATL: ASTM A325 STEEL BOLT
SCALE: FULL
-069 ASSY (2 REQD)
SCALE: FULL
LAB1C07045


34.00
34.00
+X
+Y
N
SECTION K-K
76.1(REF)
-080 ASSY
LAB 007045

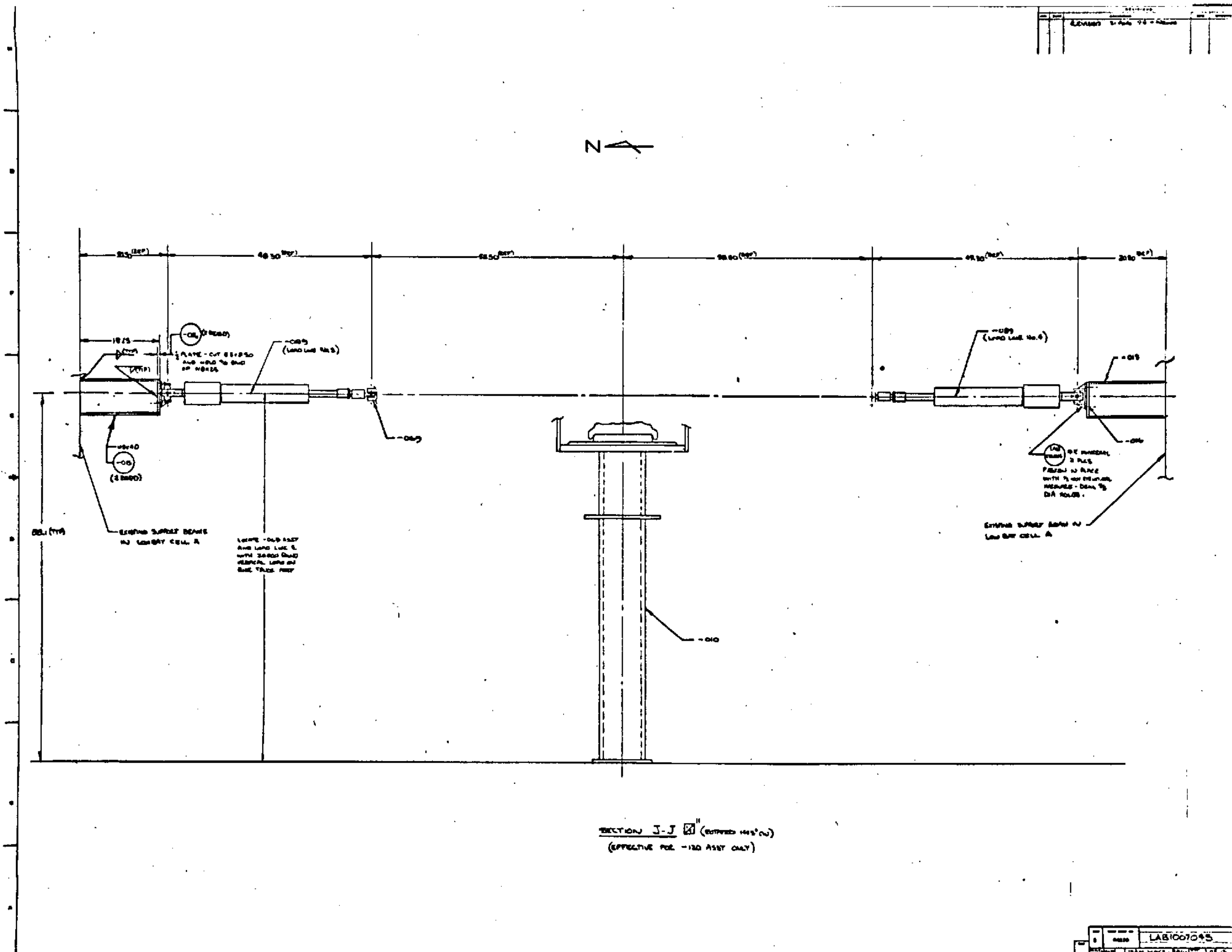

SECTION F-F (ROTATED 90° CCW)
-129 ASSY (PHASE 6-CAL)
-130 ASSY (PHASE 6)
-090 ASSY (PHASE 7, -129 ASSY)
SECTION G-G (ROTATED 90° CCW)
SECTION H-H (ROTATED 90° CCW)
SECTION O-O
SECTION P-P
SECTION Q-Q
VERTICAL RECORD LOAD LINE NO. 1
VERTICAL RECORD LOAD LINE NO. 2
53.12 (REF)
39.00 (REF)
50.00
34.00 (REF)
41.00 (TYP)
47.62 (REF)
LAB100T045

TR-1315-74

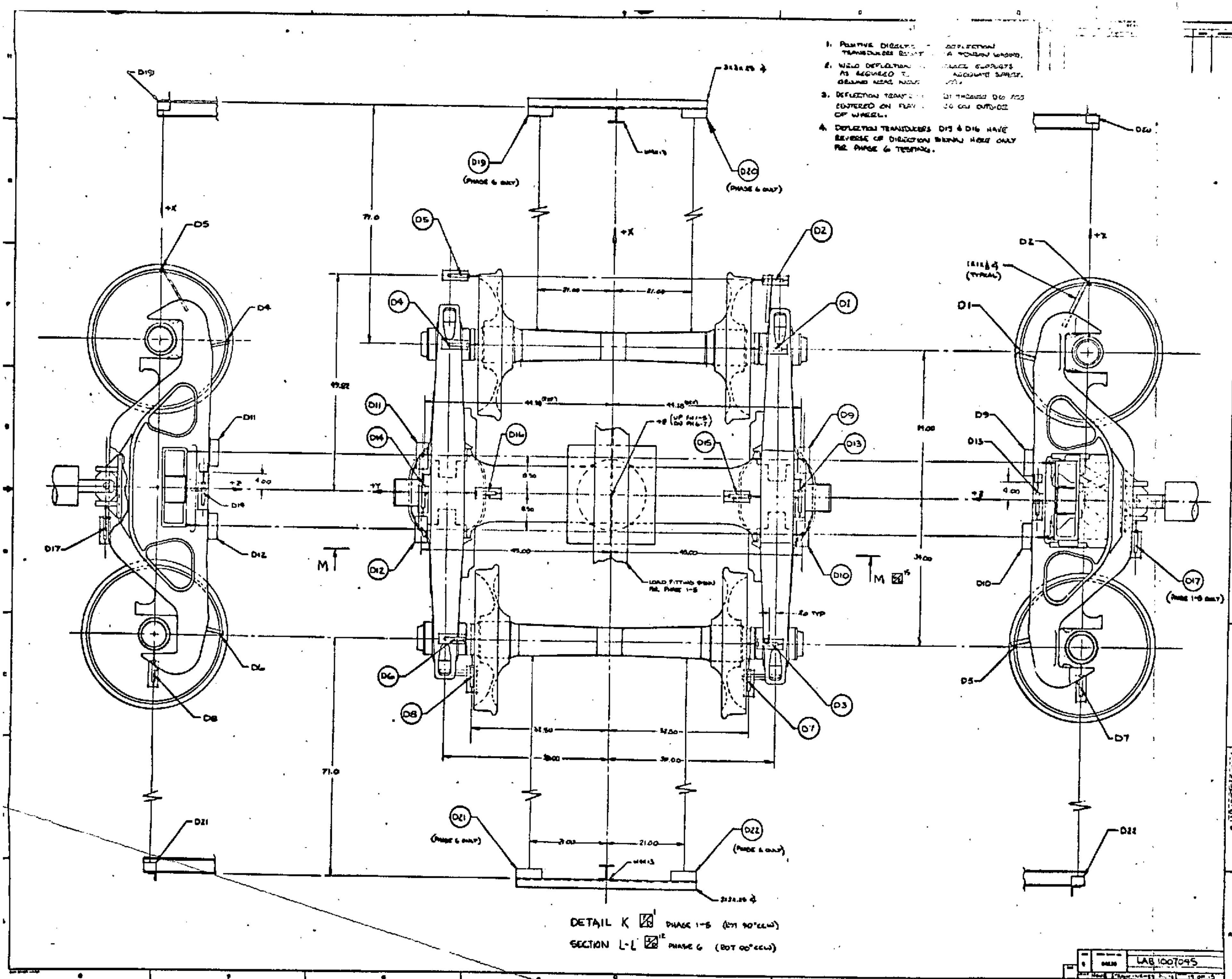


SECTION E-E

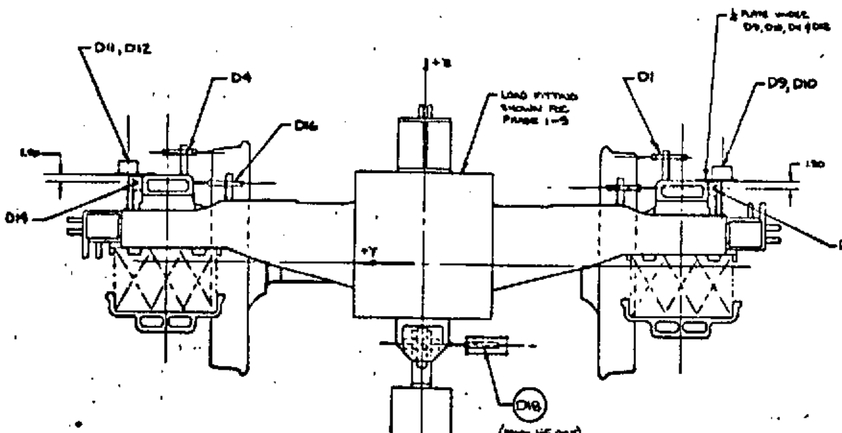
LAB1007045



SECTION J-J (ROTATED 145° CW)
(EFFECTIVE FOR -120 ASSY ONLY)


4. DEFLECTION TRANSDUCERS D15 & D16 HAVE REVERSE OF DIRECTION SIGNAL HERE ONLY FOR PHASE 6 TESTING.
D19 (PHASE 6 ONLY)
D20 (PHASE 6 ONLY)
D21 (PHASE 6 ONLY)
D22 (PHASE 6 ONLY)
D17 (PHASE 1-5 ONLY)
LOAD FITTING SHOWN FOR PHASE 1-5
DETAIL K PHASE 1-5 (ROT 90° CCW)
SECTION L-L PHASE 6 (ROT 90° CCW)
LAB 1007095

TR-3315-74



Note: D18 was installed on +Y side of universal.

SECTION M-M

DEFLECTION TRANSDUCER SUMMARY

(SEE TABLES 2 AND 3 OF TEST PROCEDURE TR-131S-74 FOR EXACT DIMENSIONS USED DURING TESTING)

GAGE NUMBER	LOAD PHASE UTILIZED	RANGE / DIRECTION	DESCRIPTION	NOMINAL COORDINATE LOCATION		
				X (mm)	Y (mm)	Z (mm)
D1	1 TO 6	±1.0 Y	SIDEFRAME RELATIVE TO WHEEL/AXLE	+34.00	-32.18	+15.50
D2				+49.50	-32.18	0.00
D3				-34.00	-32.18	+15.50
D4				+34.00	+32.18	+15.50
D5				+49.50	+32.18	0.00
D6		±1.0 Y		-34.00	+32.18	+15.50
D7		±1.0 X		-37.56	-32.50	0.00
D8		±1.0 X	SIDEFRAME RELATIVE TO WHEEL/AXLE	-37.56	+32.50	0.00
D9		±3.0 Z	BOLSTER RELATIVE TO SIDEFRAME	+8.50	-45.00	—
D10				-8.50	-45.00	—
D11				+8.50	+45.00	—
D12		±3.0 Z	BOLSTER RELATIVE TO SIDEFRAME	-8.50	+45.00	—
D13		±1.0 X	SIDEFRAME RELATIVE TO BOLSTER	+4.00	-44.38	+12.25
D14		±1.0 X		+4.00	+44.38	+12.25
D15		±1.0 Y		0.00	-35.00	+12.25
D16	1 TO 6	±1.0 Y	SIDEFRAME RELATIVE TO BOLSTER	0.00	+35.00	+12.25
D17	1 TO 5	±1.0 X	BOLSTER RELATIVE TO GROUND	—	-1.25	-14.00
D18	1 TO 5	±1.0 Y	BOLSTER RELATIVE TO GROUND	-1.00	—	-16.71
D19	6	±3.0 X	WHEEL AXLE RELATIVE TO GROUND	+38.00	+21.00	0.00
D20	6			+38.00	-21.00	0.00
D21	6			-38.00	+21.00	0.00
D22	6	±3.0 X	WHEEL AXLE RELATIVE TO GROUND	-38.00	-21.00	0.00

LAB 1007045

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